



Serving Public Health Since 1928

Coachella Valley Mosquito and Vector Control District

43420 Trader Place, Indio, CA 92201 | (760) 342-8287 | cvmosquito.org

Board of Trustees Meeting

Tuesday, July 11, 2023

6:00 p.m.

AGENDA

The Board of Trustees will take action on all items on the agenda.

Materials related to an agenda item that are submitted to the Board of Trustees after distribution of the agenda packets are available for public inspection in the Clerk of the Board's office during normal business hours and on the District's website.

This meeting will be conducted by video and/or teleconference as well as in person at the District office located at the address listed above. To view/listen/participate in the meeting live, please join by calling 1-888-475-4499 (toll-free), meeting ID: [848 4682 0732](https://us02web.zoom.us/j/84846820732), or click this link to join: <https://us02web.zoom.us/j/84846820732>.

Assistance for those with disabilities: If you have a disability and need an accommodation to participate in the meeting, please contact the Clerk of the Board at (760) 342-8287 at least 48 hours prior to the meeting to inform us of your needs and to determine if accommodation is feasible. The District will attempt to accommodate you in every reasonable manner.

Before entering the District's facilities, we request that you self-screen for COVID-19 symptoms. We want to work together to help limit the spread of COVID-19.

- 1. Call to Order** – John Peña, President
 - A. Roll Call**

2. Pledge of Allegiance

3. Confirmation of Agenda

4. Public Comments

Members of the public may provide comments in person or remotely at the time of the meeting as set forth in the agenda. Public comments may also be sent by E-mail to the Clerk of the Board by 2:00 p.m. on July 11, 2023, at mtallion@cvmosquito.org. E-mails received prior to 2:00 p.m. on the day of the Board meeting will be made part of the record and distributed to the Board. This method is encouraged as it gives the Board of Trustees the opportunity to reflect upon your input. E-mails will not be read at the meeting.

A. **PUBLIC Comments — NON-AGENDA ITEMS:** This time is for members of the public to address the Board of Trustees on items of general interest (a non-agenda item) within the subject matter jurisdiction of the District. The District values your comments; however, pursuant to the Brown Act, the Board cannot take action on items not listed on the posted Agenda. **Comments are limited to a total of three (3) minutes per speaker for non-agenda items.**

B. **PUBLIC Comments — AGENDA ITEMS:** This time is for members of the public to address the Board of Trustees on agenda items (Open and Closed Sessions). **Comments are limited to three (3) minutes per speaker per agenda item.**

All comments are to be directed to the Board of Trustees and shall be devoid of any personal attacks. Members of the public are expected to maintain a professional, courteous decorum during public comments.

5. Public Hearing for Benefit Assessment

A. Open Public Hearing — **John Peña, Board President**

B. Public Comments-Benefit Assessment

C. Approval of Resolution 2023-10 Approving Engineer's Report, Confirming Diagram and Assessment, and Ordering the Levy of Assessments for the Fiscal Year 2023-24 for the Coachella Valley Mosquito and Vector Control District Mosquito, Fire Ant and Disease Control Assessment — **David I'Anson, Administrative Finance Manager (Pg. 7)**

D. Close Public Hearing — **John Peña, Board President**

6. Announcements, Presentation, and Written Communications

- A. Board of Trustees Service Recognition Awards — **John Peña, Board President**

7. Items of General Consent

The following items are routine in nature and may be approved by one blanket motion upon unanimous consent. The President or any member of the Board of Trustees may request an item be pulled from Items of General Consent for a separate discussion.

- A. Minutes for June 13, 2023, Board Meeting **(Pg. 14)**
- B. Approval of expenditures for June 9, 2023, to July 7, 2023 **(Pg. 24)**
- C. Approval of Resolution 2023-11 Adopting Employee Pay Schedule, in conformance with California Code of Regulations, Title 2, Sections 570.5 and 571 — **Jeremy Wittie, M.S., CSDM, General Manager (Pg. 25)**
- D. Informational Items:
- Financials — **David l'Anson, Administrative Finance Manager (Pg. 31)**
 - Mosquito and Vector Control Association of California (MVCAC) Bill Status Report as of July 7, 2023 **(Pg. 35)**
 - National Emergency Management Training — **Tammy Gordon, MA, APR, MPIO, Public Information Manager (Pg. 45)**
 - Trustee Travel **(Pg. 46)**
 - Semi-annual research reports from the University of California, Davis, University of California, Riverside, Mount Sinai School of Medicine, and the USDA for 2023 — **Jennifer A. Henke, M.S., Laboratory Manager (Pg. 48)**

8. Business Session

- A. Old Business — None
- B. New Business
- I. Accept the resignation of Trustee Janell Percy — **Jeremy Wittie, M.S., CSDM, General Manager (Pg. 100)**

9. Committee and Trustee Reports

- A. Executive Committee — **John Peña, Board President**
Executive Committee oral report

B. Finance Committee — **Clive Weightman, Board Treasurer**

Finance Committee oral report and Finance Committee minutes from June 5, 2023
(Pg. 103)

C. Trustee Comments, Requests for Future Agendas Items, Travel, and/ or Staff Actions

The Board may not legally take action on any item presented at this time other than to direct staff to investigate a complaint or place an item on a future agenda unless (1) by a majority vote, the Board determines that an emergency exists, as defined by Government Code Section 54956.5, or (2) by a two-thirds vote, the board determines that the need for action arose subsequent to the agenda being posted as required by Government Code Section 54954.2(a). Each presentation is limited to no more than three minutes.

10. Reports

A. General Manager

- i. General Manager’s Report — **Jeremy Wittie, M.S., CSDM, General Manager**
- ii. Arbovirus Risk and Response update (as necessary) — **Jennifer A. Henke, MS, Laboratory Manager, Greg Alvarado, Operations Manager, Tammy Gordon, MA, APR, MPIO, Public Information Manager**

Questions and/or comments from Trustees regarding the reports

B. General Counsel

11. Closed Session

Closed Session (s): None

12. Adjournment

At the discretion of the Board, all items appearing on this agenda, whether or not expressly listed for action, may be deliberated and may be subject to action by the Board.



Certification of Posting

I certify that on July 7, 2023, I posted a copy of the foregoing agenda near the regular meeting place of the Board of Trustees of the Coachella Valley Mosquito & Vector Control District and on the District's website, said time being at least 72 hours in advance of the meeting of the Board of Trustees (Government Code Section 54954.2)

Executed at Indio, California, on July 7, 2023

Melissa Tallion, Clerk of the Board



Serving Public Health Since 1928

PUBLIC HEARING



Serving Public Health Since 1928

Coachella Valley Mosquito and Vector Control District

Staff Report

July 11, 2023

Agenda Item: Public Hearing

Approval of Resolution 2023-10 Approving Engineer's Report, Confirming Diagram and Assessment, and Ordering the Levy of Assessments for the Fiscal Year 2023-24 for the Coachella Valley Mosquito and Vector Control District Mosquito, Fire Ant and Disease Control Assessment — **David l'Anson, Administrative Finance Manager**

Background:

Resolution No. 2023-09, approved by the Board of Trustees on June 13, 2023, approved the intention to levy assessments for fiscal year 2023-2024, preliminarily approving the engineer's report, and providing for notice of hearing for the CVMVCD Mosquito, Fire Ant, and Disease Control Assessment.

Resolution No. 2023-10 approves the Engineer's Report and orders the levy of the assessment at the rate of \$14.39

In 2005, Coachella Valley property owners approved a yearly fee of \$16.00 per residential unit for the Mosquito, Fire Ant, and Disease Control Assessment by 74.19%, the highest approval rating for a similar measure in the State of California that year. Included in the voter approval was an inflation escalator allowing for a 3% per year inflationary increase to the assessment. State law requires the District to renew the base assessment and any inflationary increase each year through a public hearing process.

The District's Board is now conducting a public hearing to consider the assessments for the 2023-2024 fiscal year to fund its programs and services. The District provides services and programs for disease and vector surveillance, disease prevention, control of vectors using integrated vector control management (IVM) methods, and quality assessment. The mosquito abatement, vector control, and disease prevention projects and programs include, but are not limited to, source reduction, ground and aerial surveillance and control applications, disease monitoring, public education, quality control and applied research as well as maintenance of buildings, grounds and equipment, and operating expenses. The District's services encompass approximately 2,400 square miles and are provided to properties accommodating over 400,000 permanent residents with a seasonal influx of over 100,000 people.

The majority of the District's funding is generated by a percentage of the 1% property tax collected from Coachella Valley property owners. Any property owner who feels that the assessment levied on the subject property is in error may file a written appeal with the General Manager of the Coachella Valley Mosquito and Vector Control District or his or her designee.

In each subsequent year for which an assessment will be levied, the Board must;

- Preliminarily approve at a public meeting a budget for the upcoming fiscal year's costs and services;
- Preliminarily approve at a public meeting an updated annual Engineer's Report, and;
- Provide an updated assessment roll listing all parcels and their proposed assessments for the upcoming fiscal year and;
- Call for the publication in a local newspaper of a legal notice of the intent to continue the assessments for the next fiscal year and set the date for the noticed public hearing. At the annual public hearing, members of the public can provide input to the Board prior to the Board's decision on continuing the services and assessments for the next fiscal year.

The yearly assessment is subject to an annual adjustment tied to the Consumer Price Index-U for the Los Angeles-Riverside-Orange County Area as of December of each succeeding year (the "CPI"), with a maximum annual adjustment not to exceed 3%. The yearly assessment rate per single-family equivalent benefit unit for the Mosquito, Fire Ant, and Disease Control Assessment may increase in future years by an amount equal to the annual change in the CPI, not to exceed 3% per year. In the event that the annual change in the CPI exceeds 3%, any percentage change in excess of 3% can be cumulatively reserved and can be added to the annual change in the CPI for years in which the CPI change is less than 3%.

The fiscal year 2023-2024 assessment budget includes:

- Outlays for West Nile Virus
- Surveillance and mosquito control
- RIFA control
- Capital equipment
- Supplies
- Disease testing programs
- Other vector programs

The annual CPI change for the Riverside-San Bernardino - Ontario Area from January 2022 to January 2023 is 7.330%, which exceeds 3%, so 3% will be used as the inflator for FY 2023-2024. The maximum authorized assessment rate for fiscal year 2023-2024 is \$25.60 per single-family equivalent benefit unit. The proposed fiscal year 2023-2024 assessment rate per single-family equivalent benefit unit for the Mosquito, Fire Ant, and Disease Control Assessment is \$14.39 which is less than the maximum allowable rate.

Since property owners in the assessment ballot proceeding conducted in 2005 approved the initial assessment including the CPI adjustment schedule, the assessment may be levied annually and may be adjusted by up to the maximum annual CPI adjustment without any additional assessment ballot proceeding.

OPTIONS TO CONSIDER:

1. To accept and adopt Resolution 2023-10, setting the annual benefit assessment amount to \$14.39 per single-family equivalent family unit, to properly finalize and adopt the assessment proceedings accordingly defined in Proposition 218.

Recommendation:

Proceed with the approval of Resolution 2023-10 approving the Engineer's report

Attachments

- Resolution 2023-10
- Engineer's Report:
https://www.cvmosquito.org/sites/g/files/vyhlf4551/f/uploads/fy2324_cvmvcd_engineers_report_ph_final.pdf

RESOLUTION NO. 2023-10

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE
COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT**

**A RESOLUTION
APPROVING ENGINEER'S REPORT, CONFIRMING DIAGRAM AND ASSESSMENT, AND
ORDERING THE LEVY OF ASSESSMENTS
FOR FISCAL YEAR 2023-24
FOR THE COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT
MOSQUITO, FIRE ANT, AND DISEASE CONTROL ASSESSMENT**

WHEREAS, the Coachella Valley Mosquito and Vector Control District ("District") was established in 1928 as an independent special district by the Riverside County Board of Supervisors; and

WHEREAS, the mission of the District is to reduce the risk of disease transmission by mosquitoes and other vectors for the residents and visitors of the Coachella Valley; and

WHEREAS, the Coachella Valley Mosquito and Vector Control District is authorized, pursuant to the authority provided in Health and Safety Code Section 2082 and Article XIID of the California Constitution, to levy assessments for mosquito, vector, and disease control services; and

WHEREAS, the District provides vector control services which includes a system of public improvements and services intended to provide for the surveillance, prevention, abatement, and control of vectors as provided under Proposition 228 ("Services"); and such vector surveillance and control services provide tangible public health benefits, reduced nuisance benefits, and other special benefits to the public and properties with the areas of service; and

WHEREAS, an assessment for mosquito, fire ant, vector, and disease control projects and services has been given the distinctive designation of the "Mosquito, Fire Ant, and Disease Control Assessment" ("Assessment"), and is primarily described as encompassing the District jurisdictional boundaries, which covers nine incorporated cities along the I-10 Freeway (Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage), and the unincorporated areas in the greater Coachella Valley from the San Bernardino County line to the north to the Imperial and San Diego County lines to the south; and

WHEREAS, the Assessment was authorized by an assessment ballot proceeding conducted in 2005 and approved by 74.19% of the weighted ballots returned by property owners, and such assessments were levied by the Board of Trustees of the Coachella Valley Mosquito and Vector Control District by Resolution No. 2005-04 passed on July 26, 2005;

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the Coachella Valley Mosquito and Vector Control District that:

SECTION 1. Willdan Financial Services, the Engineer of Work, prepared an engineer's report (the "Report") in accordance with Article XIID of the California Constitution and Section 2082, et seq.,

of the Health and Safety Code for the Assessment. The Report has been made, filed with the secretary of the board, and duly considered by the Board and are hereby deemed sufficient and preliminarily approved. The Report shall stand as the Engineer's Report for all subsequent proceedings under and pursuant to the foregoing resolution.

SECTION 2. On June 13, 2023, this Board adopted Resolution No. 2023-09 to continue to levy and collect Assessments for fiscal year 2023-24, preliminarily approving the Engineer's Report, and providing for notice of hearing on July 11, 2023, at the hour of six o'clock (6:00) p.m. at the meeting chamber of the Coachella Valley Mosquito and Vector Control District headquarters located at 43-420 Trader Place, Indio, California, 92201.

SECTION 3. At the appointed time and place the hearing was duly and regularly held, and all persons interested and desiring to be heard were given an opportunity to be heard, and all matters and things pertaining to the levy of Assessment were fully heard and considered by this Board, and all oral statements and all written protests or communications were duly heard, considered and overruled, and this Board thereby acquired jurisdiction to order the levy of assessment prepared by and made a part of the Engineer's Report to pay the costs and expenses thereof.

SECTION 4. The above recitals are true and correct

SECTION 5. The public interest, convenience, and necessity require that the levy be made.

SECTION 6. The Engineer's Report for the Assessment together with the proposed assessment roll for fiscal year 2023-24 is hereby confirmed and approved.

SECTION 7. That based on the oral and documentary evidence, including the Engineer's Report offered and received at the public hearing, the Board expressly finds and determines that: (a) each of the several lots and parcels of land subject to the Assessment will be specially benefited by the services to be financed by the assessment proceeds in at least the amount of the assessment apportioned against such lots and parcels of land, respectively; (b) that the Assessment is levied without regard to property valuation; and (c) that there is substantial evidence to support, and the weight of the evidence preponderates in favor of, said finding and determination as to special benefit to property from the mosquito, fire ant, vector and disease control services to be financed with assessment proceeds.

SECTION 8. That assessments for fiscal year 2023-24 shall be levied at the rate of fourteen dollars and thirty-nine cents (\$14.39) per single-family equivalent benefit unit in Zone A and seven dollars and nineteen cents (\$7.19) per single-family equivalent benefit unit in Zone B per single-family equivalent benefit unit as specified in the Engineer's Report for fiscal year 2023-24 with estimated total annual assessment revenues as set forth in the Engineer's Report; and

SECTION 9. That the mosquito, fire ant, and disease control services to be financed with assessment proceeds described in the Engineer's Report are hereby ordered.

SECTION 10. No later than August 10th following such adoption, assessments and a copy of this resolution will be uploaded to the Auditor Controller's of the County of Riverside ("County Auditor"). Upon such upload, the County Auditor shall enter on the County assessment roll opposite each lot

or parcel of land the amount of assessment thereupon as shown in the assessment. The assessments shall be collected at the same time and in the same manner as County taxes are collected and all the laws providing for collection and enforcement shall apply to the collection and enforcement of the assessments. After collection by the County, the net amount of the assessments, after deduction of any compensation due the County for collection, shall be paid to the Mosquito, Fire Ant, and Disease Control Assessment.

SECTION 11. All revenues from Assessments shall be deposited in a separate fund established under the distinctive designation of the Coachella Valley Mosquito and Vector Control District, Mosquito, Fire Ant, and Disease Control Assessment.

SECTION 12. The Assessment, as it applies to any parcel, may be corrected, cancelled, or a refund granted as appropriate, by order of the Board of Trustees of the District. Any such corrections, cancellations, or refunds shall be limited to the current fiscal year.

The foregoing Resolution was PASSED and ADOPTED by the Board of Trustees of the Coachella Valley Mosquito and Vector Control District at a regular meeting thereof held on July 11, 2023, at the Coachella Valley Mosquito and Vector Control District headquarters located at 43-420 Trader Place, Indio, California, 92201.

AYES:

NOES:

ABSTAINED:

ABSENT:

John Peña, President, Board of Trustees
Coachella Valley Mosquito & Vector Control District

ATTEST:

Dr. Doug Kunz, Secretary, Board of Trustees
Coachella Valley Mosquito & Vector Control District



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ITEMS OF GENERAL CONSENT

COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT

Board of Trustees Meeting Summary of Action Items and Future Tasks June 13, 2023

Board Actions

- ❖ The Board of Trustees approved Resolution 2023-07 authorizing attendance at Professional Development Conferences and Meetings by members of the Board of Trustees and Employees of the District for Fiscal Year 2023-2024.
- ❖ The Board of Trustees approved Resolution 2023-08 adopting the Fiscal Year 2023-2024 Budget.
- ❖ The Board of Trustees approved Resolution 2023-09 intention to levy assessments for Fiscal year 2023-2024, preliminary approval of the engineer's report, and provide for notice of hearing for the CVMVCD mosquito, fire ant, and disease surveillance and vector control assessment.
- ❖ The Board of Trustees authorized the approval to purchase chemical control products in an amount not to exceed \$687,016.00 from funds 7800.01.500.028, Field Chemical Control.
- ❖ The Board of Trustees approved entering into an agreement with Client First Technology Consulting in an amount not to exceed \$37,980 from funds 6095.01.210, Professional Fees.
- ❖ The Board of Trustees approved entering into an agreement with C.J. Brown & Company CPAs for the Professional Auditing Services for Coachella Valley Mosquito and Vector Control District

COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT

Board of Trustees Meeting
DRAFT-Minutes

MEETING TIME: 6:00 p.m., Tuesday, June 13, 2023

LOCATION: 43420 Trader Place, Indio, CA 92201

TRUSTEES PRESENT

PRESIDENT: John Peña	La Quinta
VICE PRESIDENT: Benjamin Guitron	Indio (<i>joined after roll call</i>)
SECRETARY: Dr. Doug Kunz	Palm Springs
Steve Downs	Rancho Mirage
Frank Figueroa	Coachella
Gary Gardner	Desert Hot Springs
Bito Larson	County at Large
Nancy Ross	Cathedral City

TRUSTEES ABSENT

TREASURER: Clive Weightman	Indian Wells
Janell Percy	County at Large
Doug Walker	Palm Desert

STAFF AND GENERAL COUNSEL PRESENT

Jeremy Wittie, General Manager
Lena D. Wade, Legal Counsel, SBEMP
Crystal Moreno, Human Resources Manager
David l'Anson, Administrative Finance Manager
Greg Alvarado, Operations Program Coordinator
Melissa Tallion, Executive Assistant/Clerk of the Board

Other staff members joined the meeting as well

MEMBERS OF THE PUBLIC PRESENT

Yes

1. Call to Order

President Peña called the meeting to order at 6:00 p.m.

A. Roll Call

Roll call indicated eight (8) of the eleven (11) Trustees were present

2. Pledge of Allegiance

President Peña led the Pledge of Allegiance

3. Confirmation of Agenda

President Peña inquired if there were any agenda items to be shifted. Upon no objections by the Board of Trustees, the agenda was confirmed.

4. Public Comments

Mr. Anderson commented on non-agenda items and agenda items and submitted written non-agenda and agenda comments that will be distributed to the Board of Trustees. Mr. Anderson's comments are attached for the record.

5. Announcements, Presentations, and Written Communications — None

None

6. Items of General Consent

The following items are routine in nature and may be approved by one blanket motion upon unanimous consent. The President or any member of the Board of Trustees may request an item be pulled from Items of General Consent for a separate discussion.

- A. Minutes for May 9, 2023, Budget Workshop and May 9, 2023, Board Meeting
- B. Approval of expenditures for May 6, 2023, to June 8, 2023
- C. Approval of Resolution 2023-07 authorizing attendance at Professional Development Conferences and Meetings by members of the Board of Trustees and Employees of the District for Fiscal Years 2023-2024 — **Jeremy Wittie, M.S., CSDM, General Manager**
- D. Informational Items:
 - Financials — **David I'Anson, Administrative Finance Manager**
 - Quarterly Department Reports: Human Resources; Operations; Information Technology; Fleet Services; Laboratory & Surveillance Control; and Public Outreach
 - Important Budget Meeting Dates — **Finance Committee**
 - Mosquito and Vector Control Association of California (MVCAC) Bill Status Report as of May 6, 2023
 - Government Social Media Conference, May 1-4, 2023, Reno, Nevada — **Luz Moncada, Community Liaison, Fernando Gutierrez, Community Liaison**
 - National Association of Government Communicators Conference, April 18-20, 2023, Portland, Oregon — **Tammy Gordon, MA, APR, MPIO, Public Information Manager**
 - Managing the message; Crisis Communication Workshop and Exercise, May 23-26, 2023, Portland Oregon — **Tammy Gordon, MA, APR, MPIO, Public Information Manager**
 - Intermediate Public Information Officer Training, May 16-19, 2023, Visalia, CA — **Luz Moncada, Community Liaison**

On a motion from Trustee Downs, seconded by Trustee Gardner, and passed by the following votes, the Board of Trustees approved all items of General Consent.

Ayes: President Peña, Trustees Downs, Figueroa, Gardner, Guitron, Kunz, Larson, Ross

Abstained: None

Noes: None

Absent: Trustees Percy, Walker, Weightman

7. Business Session

A. Old Business — None

None

B. New Business

- i. Discussion and/or approval of Resolution 2023-08 adopting the Fiscal Year 2023-2024 Budget — **Jeremy Wittie, M.S., CSDM, General Manager, and David I'Anson, Administrative Finance Manager**

Jeremy Wittie introduced this agenda item and provided an overview of the Resolution and Fiscal Year 2023-2024 Budget.

On a motion from Trustee Kunz, seconded by Trustee Guitron, and passed by the following votes, the Board of Trustees approved Resolution 2023-08 adopting the Fiscal Year 2023-2024 Budget.

Ayes: President Peña, Trustees Downs, Figueroa, Gardner, Guitron, Kunz, Larson, Ross

Abstained: None

Noes: None

Absent: Trustees Percy, Walker, Weightman

- ii. Discussion and/or approval of Resolution 2023-09 intention to levy assessments for Fiscal year 2023-2024, preliminary approval of the engineer's report, and providing for notice of hearing for the CVMVCD mosquito, fire ant, and disease surveillance and vector control assessment — **David I'Anson, Administrative Finance Manager**

David I'Anson introduced this agenda item and provided an overview of the Resolution.

On a motion from Trustee Figueroa, seconded by Trustee Downs, and passed by the following votes, the Board of Trustees approved Resolution 2023-09 intention to levy assessments for Fiscal year 2023-2024, preliminary approval of the engineer's report, and providing for notice of hearing for the CVMVCD mosquito, fire ant, and disease surveillance and vector control assessment.

Ayes: President Peña, Trustees Downs, Figueroa, Gardner, Guitron, Kunz, Larson, Ross

Abstained: None

Noes: None

Absent: Trustees Percy, Walker, Weightman

- iii. Upon the approval of the 2023-24 Budget: Discussion and/or approval to purchase chemical control products in an amount not to exceed \$687,016.00 from funds 7800.01.500.028, Field Chemical Control —**Budgeted, Funds Available** — **Greg Alvarado, Operations Program Coordinator**
Greg Alvarado introduced this agenda item and provided an overview.

On a motion from Trustee Guitron, seconded by Trustee Kunz, and passed by the following votes, the Board of Trustees approved the purchase of chemical control products in an amount not to exceed \$687,016.00.

Ayes: President Peña, Trustees Downs, Figueroa, Gardner, Guitron, Kunz, Larson, Ross

Abstained: None

Noes: None

Absent: Trustees Percy, Walker, Weightman

- iv. Upon the approval of the 2023-24 Budget: Discussion and/or approval to enter into an agreement with Client First Technology Consulting in an amount not to exceed \$37,980 from funds 6095.01.210, Professional Fees —**Budgeted, Funds Available** — **Jeremy Wittie, M.S., CSDM, General Manager**
Jeremy Wittie introduced this agenda item and provided an overview.

On a motion from Trustee Figueroa, seconded by Trustee Downs, and passed by the following votes, the Board of Trustees approved entering into an agreement with Client First Technology Consulting in an amount not to exceed \$37,980.

Ayes: President Peña, Trustees Downs, Figueroa, Gardner, Guitron, Kunz, Larson, Ross

Abstained: None

Noes: None

Absent: Trustees Percy, Walker, Weightman

- v. Discussion and/or approval to enter into an agreement with C.J. Brown & Company CPAs for the Professional Auditing Services for Coachella Valley Mosquito and Vector Control District — **David I'Anson, Administrative Finance Manager**
David I'Anson introduced this agenda item and provided an overview.

On a motion from Trustee Ross, seconded by President Peña, and passed by the following votes, the Board of Trustees approved entering into an agreement with C.J. Brown & Company CPAs for the Professional Auditing Services for Coachella Valley Mosquito and Vector Control District.

Ayes: President Peña, Trustees Downs, Figueroa, Gardner, Guitron, Kunz, Larson, Ross

Abstained: None

Noes: None

Absent: Trustees Percy, Walker, Weightman

8. Committee and Trustee Reports

A. Executive Committee — John Peña, Board President

Executive Committee oral report

President Peña stated that the Executive Committee did not meet. He also wanted to thank Trustee Janell Percy for her service to the District and wishes her well. Trustee Percy resigned from her position as Trustee for the District.

B. Finance Committee — Clive Weightman, Board Treasurer

Finance Committee oral report and Finance Committee minutes from March 14, 2023, April 11, 2023, May 2, 2023

Trustee Larson gave the Finance Committee report. Trustee Larson said that the Finance Committee approved the final draft of the FY 2023-2024 budget with the following exceptions: Put \$400,000 into Reserves for future Sterile Insect Technique (SIT) work and use \$200,000 for a public outreach project in the Eastern Valley. The General Fund Operational Cash Flow chart was shown and discussed.

C. Trustee Comments, Requests for Future Agendas Items, Travel, and/ or Staff Actions

None

9. Reports

A. General Manager

i. General Manager's Report and Arbovirus Risk and Response update — Jeremy Wittie, M.S., CSDM, General Manager

Jeremy Wittie gave an update on the Arbovirus response plan to include the Districts' risk model. The upcoming summer area-wide applications for Rancho Mirage and Palm Springs were discussed along with staffing updates, MVCAC Legislative updates, and the District's annual report for 2022.

B. General Counsel
Nothing to report,

10. Closed Session

Closed Session (s): None

11. Adjournment

President Peña adjourned the meeting at 6:48 p.m.

John Peña
President

Dr. Doug Kunz
Secretary

DRAFT

June 13, 2023

Coachella Valley Mosquito and Vector Control District (CVMVCD)

43420 Trader Pl.

Indio, CA. 92201

888.343.9399 / 760.342.8287 – www.cvmvcd.org

Attn: Clerk of the Board / Board of Trustees/ General Public

Re: Public Comment(s) for the June 2023 - CVMVCD Board of Trustees meeting

Dear CVMVCD appointed members,

Please consider allowing citizens the opportunity to attend your organizations precived open Public meetings without imposing immortal restrictions on their potential participation and monitoring of the people's business (CVMVCD operations).

See agenda Items of Intrested listed below

1) Agenda Item: 4.A. (Non-Agenda Public comment)

It's concerning that the CVMVCD administration have been actively attempting to destroy it's current workforce. It appears that the status quo operations (administrators left-over from prior removals of CVMVCD administration staffing and its general manager) have the ability to effectively remove employees at their whims to potentially place familiar people (Family and friends) in employment positions at the Coachella Valley Mosquito and Vector Control District (CVMVCD).

It's remarkably clear that those radical actions to purge certain employees from CVMVCD employment have and will continue to damage the once strong favorable reputation of the CVMVCD organization. And furthermore potentially harming the Public that once depended on the services of the CVMVCD organization to curve threats of Vectors within the Coachella Valley. Having a diverse range of people that are not politicized by CVMVCD officials will potentially strengthen the Publics trust – please disengaged the CVMVCD organization potential “best practices” of nepotism and using Public monies to empire built over true efforts to reduce and or eliminate mosquito breeding sites and other Vector related threats to Public safety.

Once more – the CVMVCD organization have already funded (removed monies form other Public uses) to a radical (not approved by Citizens of our region) Sterile Insect Technique (SIT) progressive program. It's clear that CVMVCD Board of Trustees and it's administration have not effectively served this region with the CVMVCD ever increasing budget that have done very little to improve Valley Resident's enjoyment of their private property and Public venues without a ever increasing

abundance of Vectors (such as Mosquitoes). The CVMVCD have continued to demonstrate a great disregard for the community that financially supports it –

The recent actions of this organization to redirect two hundred thousand dollars (\$200,000.) From monies of the procurement of (SIT) progressive program funds for what was described as “Outreach” to areas of East Coachella Valley to Spanish speaking & “Indigenous dialect?” communities is very misleading. It is shameful that comments made during the last CVMVCD finance committee meeting where the chairman of that three (3) person committee ask that this “Outreach” avoid supplying (SIT) information to resident's as part of the CVMVCD “Outreach” campaign that would be financed by (SIT) reserves. Transparency has been compromised by progressive elements of the CVMVCD and will continue to decay the Public's trust in the CVMVCD organization.

Having a long established employee (Geneva Ginn) that have been potentially compromised with undeserved advantages - despicable unethical behavior, and now being involved directly with Coachella Valley Cities (Indio) will only further diminish CVMVCD organizations community trust. It's highly recommended that the CVMVCD take necessary steps (Best Practices) to ensure that the Public is protected from elements (employees that have and continue to damaged Public trust and displays unprofessional conduct) from further potential damage to our community.

The CVMVCD organizations ongoing (Not published) submission to Riverside County Superior Court for an “Inspection Warrant” has been misused and clearly abused by CVMVCD administration (legal counsel) - It's highly recommended that the CVMVCD place those invasive monitoring statements of private properties within the CVMVCD Public meeting documents (Board packet) to be reviewed by Resident's to verify the truthfulness of those documents. Actions that were reported in this agenda packet of Supervisor (Oldembour Avalos) involvement with Riverside County officials to use their authority to financial punish a property owner that the CVMVCD had damaged vegetation while trespassing on their private property is really concerning. As the CVMVCD organization is well aware of – that mosquito breeding site was well known by CVMVCD officials and was allowed to be unchecked as was the property of “Kent Sea Tech” (prior CVMVCD administrator - operations manager) was at one time directly involved with that company) and CVMVCD activity was potentially allowed to be subverted. Unethical behavior appears to be required rather than discouraged - please strive to perform Public services with honorable results.

It's remarkable that now the CVMVCD administration have chosen to allow for “screening” of known mosquito breeding/harboring sites. Such actions of CVMVCD staff to proactively “screen” areas of potential concern in past years – would be grounds for selective employment termination. Of course those selective invasive prior year unreasonable restrictions were in place to potentially allow for higher vector abundance around certain CVMVCD mosquito traps for weekly and bi-weekly mosquito counting. The CVMVCD administration has potentially used such pretext allegations for less than honorable reasons to purge certain employees from CVMVCD employment in past years.

- 2) Agenda Item: 7.B. (Resolution 2023-09 – unnecessary Intentions to levy assessment)
Opposed

The CVMVCD have continued to demonstrate that having accessibility to an unlimited amount of resources (Benefit assessments) have cause a disconnect between the CVMVCD operations and the taxpayers. The ever increasing number of reserve fund account(s) have help to illustrate that the CVMVCD administration will attempt to collect revenue at all costs.

As the CVMVCD administration is well aware, the district has the ability to reduce the precived benefit assessment amount (stop gouging taxpayer's)

It's clear that the CVMVCD administration benefit assessment amount proposed for 2023-24 will be possibly unlawful due to the CVMVCD organization budgeting process that allows for potential pretext accounting.

3) Agenda Item: 7.B. (Client First Technology consulting)

Opposed

The proposed endeavor to hire external forces to expend resources to certain people (company) that was recommended by an prior non-elected official (Isaiah Hagerman – Current City of Rancho Mirage manger) will be devastating to what maybe a precived open and fair RFP process.

The CVMVCD administration should be able to perform these duties in house and be accountable to residents of our community.

Sincerely,

Brad Anderson | Rancho Mirage, CA. | ba4612442@gmail.com

Coachella Valley Mosquito and Vector Control District

Checks Issued for the Period of:

June 9 - July 7, 2023

Check No	Payable To	Description	Check Amount	Total Amount
	Payroll Disbursement	June 9, 2023	273,110.27	
	Payroll Disbursement	June 23, 2023	229,335.76	
				502,446.03
Pre-Approved Expenditures Utilities/Benefits:				
44696	CalPERS - Retirement Acct	Retirement Contributions: 06/09/2023PP	32,746.67	
44699	Imperial Irrigation District	District Electricity Utility	8,318.12	
44700	Indio Water Authority	District Water Utility	1,135.43	
44705	Principal Life Insurance Co.	Cafeteria Plan	13,558.67	
44712	CalPERS - Retirement Acct	Retirement Contributions: 06/23/2023PP	32,992.20	
44713	MissionSquare (Plan# 302318)	Deferred Compensation: 06/09/2023PP	24,149.70	
44715	SoCalGas	District Natural Gas Utility	144.31	
44734	CalPERS Healthcare Acct	July Healthcare	91,943.65	
				204,988.75
Pre-Approved Expenditures less than \$10,000.00:				
44697	CleanExcel	Janitorial Services	8,384.00	
44698	Dudek & Associates	Civil Engineering	2,715.00	
44701	Koch Filter Corporation	Repair & Maintenance	775.56	
44702	Linde Gas & Equipment Inc.	Cylinder Rentals	65.03	
44703	Pitney Bowes Global Financial Services LLC	Contract Services	310.82	
44704	Pitney Bowes Purchase Power	Contract Services	31.16	
44706	Diana Reyes	Professional Development	159.75	
44707	SC Commercial LLC dba SC Fuels	Motor, Fuel, Oil	8,214.50	
44708	Veolia ES Technical Solutions, LLC	Lab Supplies and Expense	117.78	
44709	Valley Lock & Safe	Repair & Maintenance	676.08	
44710	Waxie Sanitary Supply	Field Supplies	90.55	
44714	Petty Cash Chkng Account Custodian	Petty Cash	386.28	
44716	Advance Imaging Systems	Contract Service	447.39	
44717	Airgas USA, LLC	Lab Supplies	1,941.04	
44718	CarQuest Auto Parts	Vehicle Parts & Supplies	718.38	
44720	Cintas Corporation #3	Uniform Expense	4,800.89	
44721	CSI Ceja Security International	Security Patrol Services	1,547.00	
44722	Grainger	Capital Outlay	4,501.33	
44723	Hypertec USA Inc	Cloud Computing Services	681.64	
44724	Indio Emergency Medical Group	Physician Fees	400.00	
44725	Jernigan's Sporting Goods, Inc.	Safety Expense	391.49	
44726	Izzy Motors Inc. dba La Quinta Chevrolet	Vehicle Parts & Supplies	788.33	
44727	NAPA Auto & Truck Parts	Building & Grounds Maintenance	1,879.09	
44728	Slovak Baron Empey Murphey & Pinkney LLP	Attorney Fees	4,275.50	
44729	Veolia ES Technical Solutions, LLC	Lab Supplies and Expense	116.37	
44730	Gonzalo Valadez	Tuition Reimbursement	307.95	
44731	Valley Lock & Safe	Repair & Maintenance	206.63	
44732	Vector-Borne Disease Account	CDPH Annual Certification Fees	9,169.00	
44733	Verizon Wireless	IT Communications	3,205.73	
44735	Department of Environmental Health	Permits	1,828.00	
44736	David IAnson	CSDA Travel Expense	677.27	
44737	Riverside LAFCO	LAFCO Dues	2,910.69	
	Cash - California Bank & Trust Checking			62,720.23
	Cash - California Bank & Trust Checking			
44711	U.S. Bank	Calcard June 2023 Statement	126,948.22	
44738	Vector Control Joint Powers Agency	Property and Liability Premium Deposit	620,472.00	
	Cash - California Bank & Trust Check Run Total to be Approved			747,420.22
Total Expenditures: June 9 - July 7, 2023				1,517,575.23

John Pena, President

Clive Weightman, Treasurer



**Coachella Valley Mosquito and
Vector Control District**

July 11, 2023

Staff Report

Agenda Item: Informational Item

Approval of Resolution 2023-11 Adopting Employee Pay Schedule, in conformance with California Code of Regulations, Title 2, Sections 570.5 and 571 — **Jeremy Wittie, M.S., CSDM, General Manager**

Background:

On August 10, 2011, CalPERS adopted *California Code of Regulations (CCR) Title 2, Sections 570.5 and 571(b)*, which set specific requirements for making pay schedules publicly available. The stated purpose was to ensure consistency and enhance disclosure and transparency of public employee compensation.

In order to fully meet the requirements of these regulations, the pay schedule must list a position title for every employee position, show a pay rate for each position, and indicate the time base for the pay rate (hourly, monthly, annually, etc.). The pay schedule shown in *Exhibit A* reflects the following change:

- 3% Districtwide COLA

Strategic Business Plan Alignment

Goal 6: FINANCE-Sustained and Transparent Finances that meet District revenue needs

Staff Recommendation:

Staff recommends that the Board of Trustees approve Resolution 2023-11.

Exhibit:

- Resolution 2023-11
- Pay Schedule (Exhibit A)

RESOLUTION NO. 2023-11

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT APPROVING THE DISTRICT'S PAY SCHEDULE TO CONFORM WITH THE CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 2, SECTION 570.5 AND AMENDMENTS TO CCR SECTION 571, SUBDIVISION (b)

WHEREAS, the Coachella Valley Mosquito and Vector Control District ("District") is a political subdivision and a "local agency" of the State of California, created and operating under the authority and provisions of California Health and Safety Code Section 2000 et. seq., and is also a "local agency" within the meaning of Section 53600 of the California Government Code; and

WHEREAS, California Code of Regulations, Title 2, Section 570.5 requires governing bodies of local agencies contracting with CalPERS to approve and adopt a publicly available pay schedule in accordance with public meeting laws; and

WHEREAS, the Board of Trustees wishes to meet the requirements of these regulations by adopting a Pay Schedule which sets forth the pay ranges for all District employee classifications, including seasonal employees, in one single document;

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the Coachella Valley Mosquito and Vector Control District that:

Section 1. Recitals.

The true and correct recitals above are incorporated by this reference herein as the basis and foundation for the District's adoption of this Resolution.

Section 2. Approval of Pay Schedule

That the Board of Trustees hereby approves the pay schedule shown on Exhibit "A," which is incorporated herein by this reference, for classifications as designated on said schedule, a copy of which is attached hereto and incorporated herein by this reference.

Section 3. Effective Date.

This Resolution shall take effect upon its adoption.

Section 4. Certification.

The Clerk of the Board shall certify as to the adoption of this Resolution and shall cause the same to be processed in the manner required by law.

PASSED, ADOPTED, AND APPROVED by the Board of Trustees of the Coachella Valley Mosquito and Vector Control District this 11th day of July 2023.

John Peña, President
Board of Trustees

ATTEST:

Melissa Tallion, Clerk of the Board

APPROVED AS TO FORM:

Lena D. Wade, General Counsel

REVIEWED:

Jeremy Wittie, M.S., General Manager

RESOLUTION NO. 2023-11

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT APPROVING THE DISTRICT'S PAY SCHEDULE TO CONFORM WITH THE CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 2, SECTION 570.5 AND AMENDMENTS TO CCR SECTION 571, SUBDIVISION (b)

Exhibit "A"

**Coachella Valley Mosquito and Vector Control District
Pay Schedule**

Coachella Valley Mosquito and Vector Control District

Pay Schedule FY2023-24 Annual

	<u>Step 1</u>	<u>Step 2</u>	<u>Step 3</u>	<u>Step 4</u>	<u>Step 5</u>	<u>Step 6</u>
VCT I, Laboratory Technician	52,632.36	55,264.08	58,027.20	60,928.56	63,975.00	67,173.72
VCT II, Laboratory Assistant I	63,975.20	67,173.96	70,532.65	74,059.29	77,762.25	81,650.36
Mechanic I, Facilities Maintenance Technician I	67,173.96	70,532.65	74,059.29	77,762.25	81,650.36	85,732.88
Lead VCT, Laboratory Assistant II, Mechanic II, Facilities Maintenance Technician II	70,532.68	74,059.32	77,762.28	81,650.40	85,732.92	90,019.56
Administrative Clerk	59,371.53	62,340.11	65,457.11	68,729.97	72,166.47	75,774.79
Accounting Technician I	62,340.12	65,457.13	68,729.98	72,166.48	75,774.81	79,563.55
Purchasing Clerk	65,457.13	68,729.98	72,166.48	75,774.81	79,563.55	83,541.72
Accounting Technician II	68,011.77	71,412.35	74,982.97	78,732.12	82,668.73	86,802.16
Community Liaison	70,052.12	73,554.72	77,232.46	81,094.08	85,148.79	89,406.23
Public Outreach Coord, IT/GIS Assist, Unmanned Aircraft Systems (UAS) Operator	79,006.00	82,956.30	87,104.11	91,459.32	96,032.28	100,833.90
Biologist	83,058.62	87,211.55	91,572.12	96,150.73	100,958.27	106,006.18
Field Supervisor, Public Info. Officer	96,313.22	101,128.88	106,185.33	111,494.59	117,069.32	122,922.79
Environmental Biologist, Vector Ecologist, IT/GIS Analyst, Lead Supervisor, Operations Program Coordinator	101,128.21	106,184.62	111,493.85	117,068.55	122,921.97	129,068.07
Seasonal Vector Control Operator (890-hours max.)	16,020.00	16,910.00				
Exec. Assist./Clerk of Board, HR Specialist, Payroll Coordinator	81,040.04	85,092.05	89,346.65	93,813.98	98,504.68	103,429.91
Admin/Finance Manager, Human Resources Manager, IT Manager, Public Information Manager, Operations Manager, Lab Manager	112,540.51	118,167.54	124,075.91	130,279.71	136,793.69	143,633.38
General Manager	175,891.04					

Educational Incentive Pay

Certificate	1%	Master's Degree	4%
Associates Degree	2%	Doctorate Degree	5%
Bachelor's Degree	3%		

Temporary: Out-of-Class

5%

Additional Duties

5%



Serving Public Health Since 1928

FINANCE REPORTS

FINANCE

The financial reports show the preliminary balance sheet, receipts, and revenue and expenditure reports for the month ending June 30, 2023. The revenue and expenditure report shows that the operating budget expenditure for July 1, 2022, to June 30, 2023, is \$14,068,360 total revenue is \$14,617,975 resulting in excess revenue over (under) expenditure for the year to June 30, 2023, of \$549,616.

THREE YEAR FINANCIALS

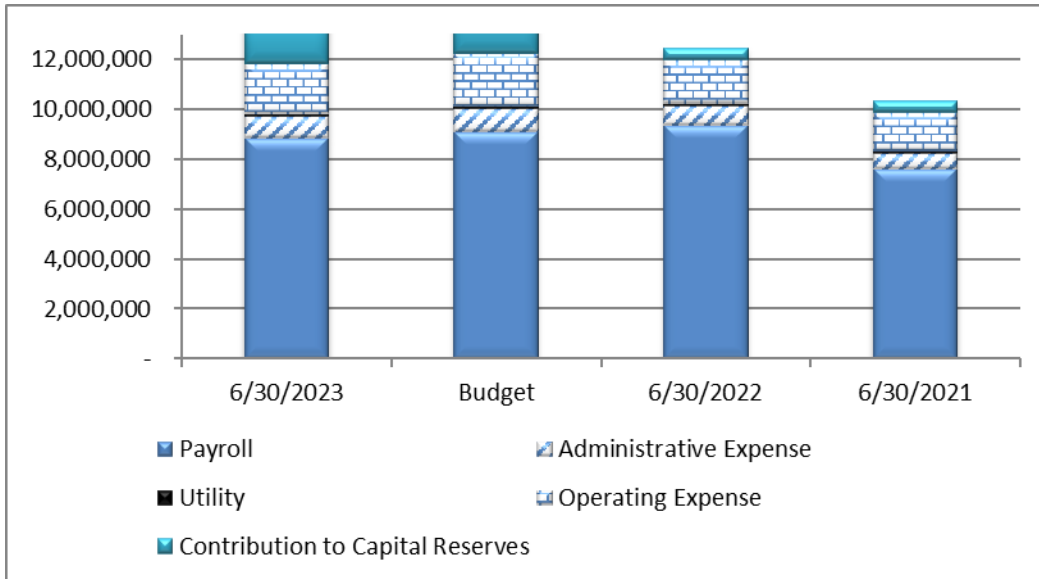


Figure 1 - Three Year Expenditure

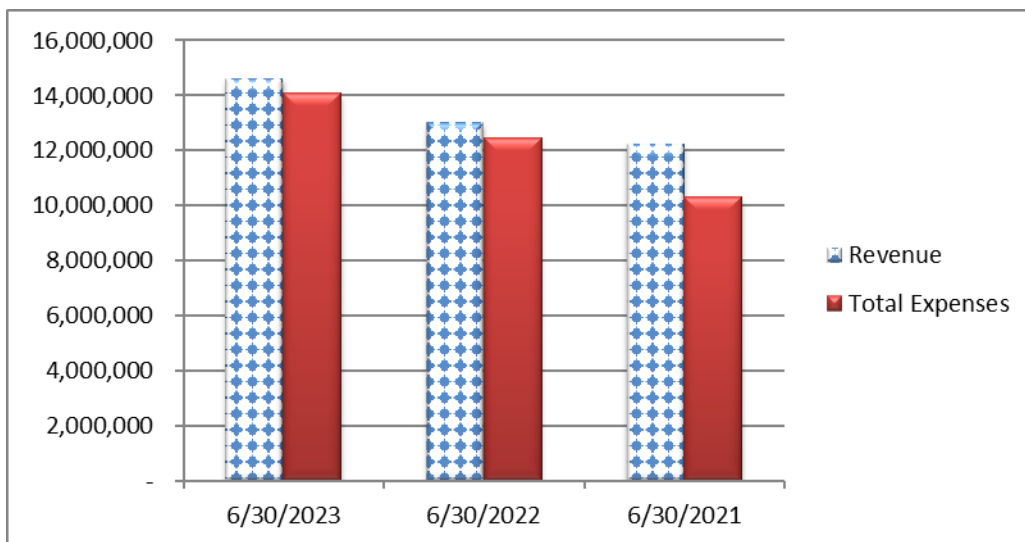


Figure 2 - Three Year Revenue & Expenditure

THREE-YEAR CASH BALANCE

Cash Balances	6/30/2023	6/30/2022	6/30/2021
Investment Balance	17,097,165	15,553,077	15,311,673
Checking Account	13,145	92,364	2,711
Payroll Account	153,032	122,590	143,650
Petty Cash	2,000	2,000	2,000
Total Cash Balances	17,265,342	15,770,031	15,460,033

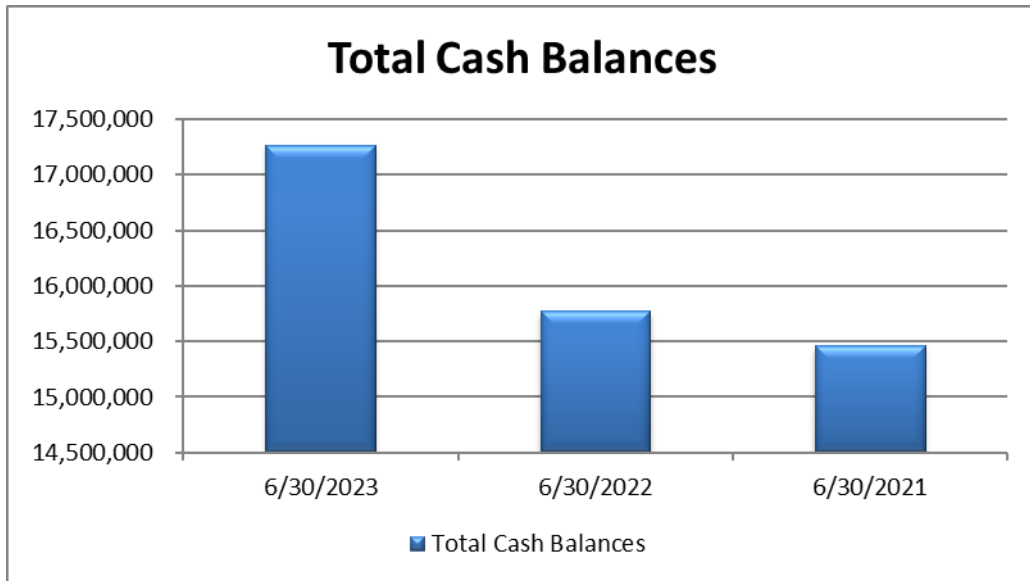


Figure 3 - Cash Balances

DISTRICT INVESTMENT PORTFOLIO 6/30/2023

The District’s investment fund balance for the period ending June 30, 2023, is \$17,097,165. The portfolio composition is shown in the pie chart. Local Agency Investment Fund (LAIF) accounts for 16.8% of the District’s investments; the Riverside County Pooled Investment Fund is 59.5% of the total. The LAIF yield for the end of June was 3.16% and the Riverside County Pooled Investment Fund was 3.72% this gives an overall weighted yield for District investments of 3.23%.

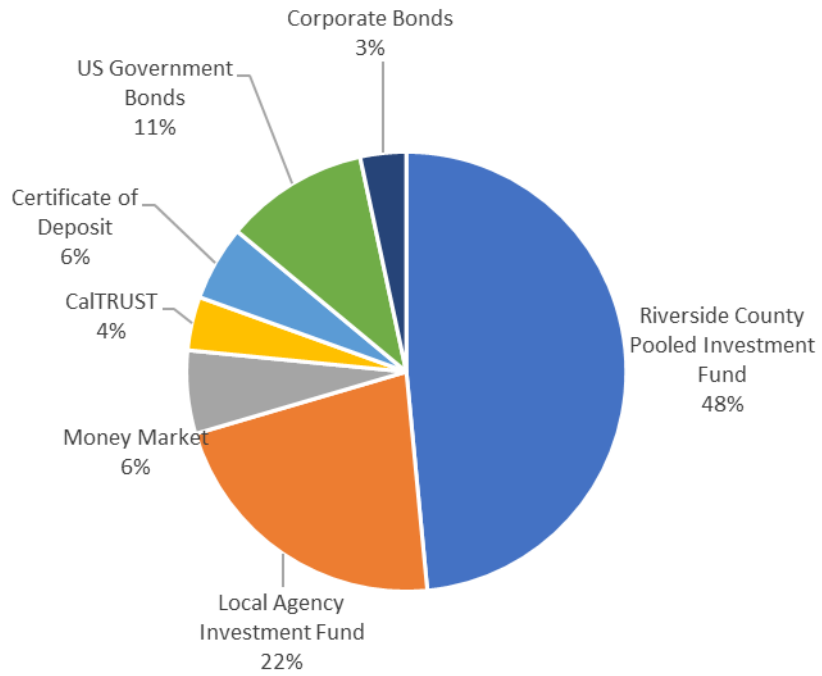


Figure 4 - Investment Portfolio 6/30/23

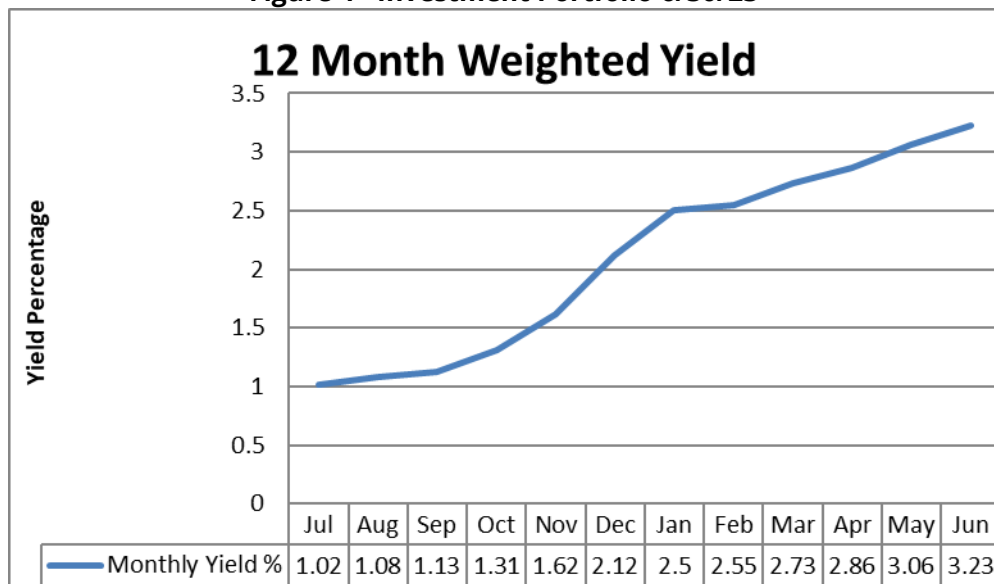
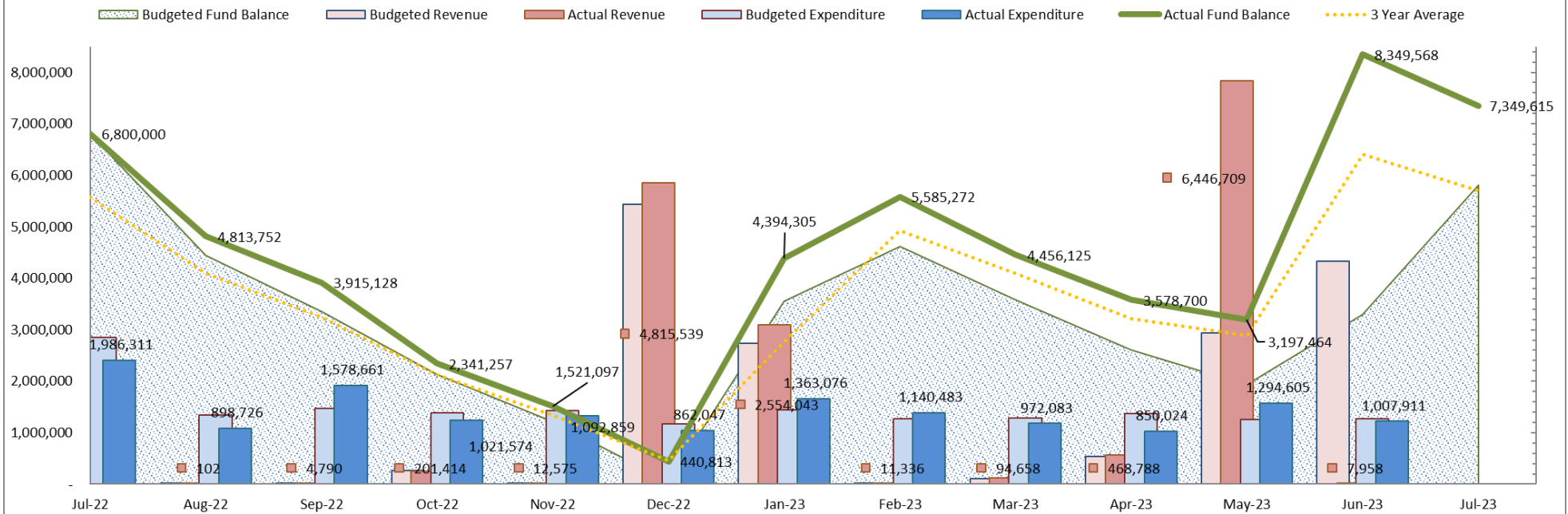


Figure 5 - District Investments Weighted Yield

General Fund Operational Cash Flow

Fiscal Year 2022- 2023



The **General Fund Operational Cash Flow** graph outlines the District’s working capital for the fiscal year July 1, 2022, to June 30, 2023. The beginning fund balance is \$6.8 million and the ending fund balance is \$5.8 million. Expenditure is approximately divided by 12 equal months, with some differences accounting for the seasonality of the program for example control products and seasonal employment which are greater in the mosquito breeding season. July expenditure is higher than average because of the prefunding lump sum of \$0.3 million for CalPERS unfunded liability and the transfers to the capital reserves. The budget also accounts for prepayments. The revenue follows a different pattern, Riverside County distributes the property tax revenue in January and May with advancements in December and April. The *shaded area* represents the **Budgeted Fund Balance** which has a formula of (beginning) **Fund Balance** plus **Revenue** minus **Expenditure**. The *green line* represents the **Actual Fund Balance** and is graphed against the *shaded area* **Budgeted Fund Balance**. The *Three Year Average* Fund Balance is the orange dash line.

The graph shows a \$6.8 million **Fund Balance** plus total Revenue for July 1 to June 30, 2023, of \$14,617,975 minus total Expenses of \$14,068,360 is \$7,349,615. Preliminary numbers show revenue has a favorable variance of \$1,139,886, Tax Increment and Property Tax Current Secured are higher than budgeted, investment income is also coming in higher than budget. During July and early August there will be approximately \$150,000 in Property Tax, Benefit Assessment as well as interest accrued to June 30. Payroll expenses show a favorable variance of \$264,341, this is due to timing, Administrative Expenses show favorable variance of \$57,925, Operations has a favorable variance of \$90,650. Overall, the District expenses are under budget by \$409,730 (this will be under \$200,000 after the payroll expenses are recorded) and revenue is over budget by \$1,139,886 giving a favorable variance of \$1,549,616.

Mosquito and Vector Control Association of California Bill Status Report as of 7/7/2023

[AB 98](#)

(Aguiar-Curry D) Agriculture: cotton pests abatement districts: organization and establishment: authorized counties.

Current Text: Introduced: 1/9/2023 [html](#) [pdf](#)

Introduced: 1/9/2023

Status: 6/27/2023-From Consent Calendar. Ordered to inactive file at the request of Senator McGuire.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Current law provides procedures for the formation of pest abatement districts for the purpose of pest control or abatement. The Cotton Pests Abatement District Act authorizes the organization and establishment of cotton pests abatement districts by the boards of supervisors of the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura. This bill would remove the authority to establish these districts in the Counties of Orange, San Diego, and Ventura.

Position	Rank	Group
Watch	03 - Low Priority	

[AB 99](#)

(Connolly D) Department of Transportation: state roads and highways: integrated pest management.

Current Text: Amended: 4/17/2023 [html](#) [pdf](#)

Introduced: 1/9/2023

Last Amend: 4/17/2023

Status: 6/28/2023-From committee: Do pass and re-refer to Com. on E.Q. (Ayes 11. Noes 4.) (June 27). Re-referred to Com. on E.Q.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Calendar: 7/12/2023 9 a.m. - 1021 O Street, Room 1200 SENATE ENVIRONMENTAL QUALITY, ALLEN, BENJAMIN, Chair

Summary: Would require the Department of Transportation to adopt, on or before January 1, 2025, a statewide policy to use integrated pest management, as defined, on state roads and highways, as specified, and to implement the statewide policy in cities or counties that have adopted integrated pest management approaches to road-side vegetation management. The bill would require the Department of Transportation, in developing the statewide policy, to consult with the Department of Pesticide Regulation and the University of California Statewide Integrated Pest Management Program. The bill would require the Department of Transportation, when operating in a city or a county that has a more restrictive approach than the statewide policy, to the extent feasible, to operate in a manner consistent with the approach mandated by the city or the county. The bill would require the Department of Transportation, on or before December 31, 2025, and annually thereafter, to make publicly available on its internet website the amount, location, and type of pesticides, and the pesticide formulation, by city and county, it uses, and, at least 24 hours before applying a pesticide, would require the Department of Transportation to provide on its internet website and mobile application, and through any other means of communication deemed appropriate by the applicable state transportation district, information on when and where it plans to apply the pesticide.

Position	Rank	Group
Watch	01 - High Priority	

[AB 332](#)

(Lee D) Rabies control data.

Current Text: Amended: 6/15/2023 [html](#) [pdf](#)

Introduced: 1/30/2023

Last Amend: 6/15/2023

Status: 6/26/2023-In committee: Referred to APPR. suspense file.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Current law requires the governing body of each city, city and county, or county to maintain or provide for the maintenance of an animal shelter system and a rabies control program. This bill would require the State Department of Public Health to collect certain rabies control program data from each city, city and county, or county, as outlined. By increasing the data collected from each city, city and county, and county, this bill would create a state-mandated local program.

Position	Rank	Group
Watch	03 - Low Priority	

[AB 333](#)

(Nguyen, Stephanie D) Vehicles: abatement of abandoned vehicles.

Current Text: Introduced: 1/30/2023 [html](#) [pdf](#)

Introduced: 1/30/2023

Status: 5/5/2023-Failed Deadline pursuant to Rule 61(a)(3). (Last location was TRANS. on 2/9/2023) (May be acted upon Jan 2024)

Desk	2 year	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Current law authorizes a county satisfying specified conditions to establish a service authority for the abatement of abandoned vehicles and to impose a \$1 vehicle registration fee. Current law authorizes a service authority to adopt an ordinance establishing procedures for the abatement, removal, and disposal, as a public nuisance, of an abandoned, wrecked, dismantled, or inoperative vehicle or part of the vehicle from private or public property and for the recovery of costs associated with the enforcement of the ordinance. This bill would allow the ordinance to provide for the issuance of permits or licenses, consistent with local nuisance codes and in cooperation with local code enforcement authorities, regarding the temporary parking allowance of abandoned, wrecked, dismantled, or inoperative vehicles and to authorize any necessary investigations and inspections related to the determination of a public nuisance.

Position	Rank	Group
Watch	03 - Low Priority	

[AB 340](#) (Fong, Vince R) California Environmental Quality Act: grounds for noncompliance.

Current Text: Introduced: 1/30/2023 [html](#) [pdf](#)

Introduced: 1/30/2023

Status: 4/28/2023-Failed Deadline pursuant to Rule 61(a)(2). (Last location was NAT. RES. on 2/9/2023)(May be acted upon Jan 2024)

Desk	2 year	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: The California Environmental Quality Act (CEQA) prohibits an action or proceeding from being brought in a court to challenge the approval of a project by a public agency unless the alleged grounds for noncompliance are presented to the public agency orally or in writing by a person during the public comment period provided by CEQA or before the close of the public hearing on the project before the issuance of the notice of determination. This bill would require the alleged grounds for noncompliance with CEQA presented to the public agency in writing be presented at least 10 days before the public hearing on the project before the issuance of the notice of determination. The bill would prohibit the inclusion of written comments presented to the public agency after that time period in the record of proceedings and would prohibit those documents from serving as basis on which an action or proceeding may be brought.

Position	Rank	Group

[AB 345](#) (Wilson D) Habitat restoration: flood control: advance payments.

Current Text: Amended: 6/26/2023 [html](#) [pdf](#)

Introduced: 1/31/2023

Last Amend: 6/26/2023

Status: 6/26/2023-Read second time and amended. Re-referred to Com. on APPR.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Calendar: 7/10/2023 10 a.m. - 1021 O Street, Room 2200 SENATE APPROPRIATIONS, PORTANTINO, ANTHONY, Chair

Summary: Current law establishes the Central Valley Flood Protection Board and authorizes the board to engage in various flood control activities along the Sacramento River, the San Joaquin River, their tributaries, and related areas. This bill would authorize the Department of Water Resources or the board to provide advance payments, as defined, to local agencies for projects that restore habitat for threatened and endangered species under state or federal law or improve flood protection, as provided. The bill would prohibit the amount of funds advanced by the department or the board to the local agency at any one time from exceeding 25% of the entire amount authorized to be provided under the funding agreement. The bill would require the project proponent to demonstrate a need for an advance payment and that the project proponent is sufficiently qualified to manage the project and the project's finances. The bill would require the funds to be spent within 6 months and would require the recipient to provide an accountability report to the department or the board on a quarterly basis, as specified.

Position	Rank	Group

[AB 363](#) (Bauer-Kahan D) Pesticides: neonicotinoids for nonagricultural use: reevaluation: control measures.

Current Text: Amended: 7/6/2023 [html](#) [pdf](#)

Introduced: 2/1/2023

Last Amend: 7/6/2023

Status: 7/6/2023-Read second time and amended. Re-referred to Com. on APPR.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Current law, added by the Governor’s Reorganization Plan No. 1 of 1991, creates the Department of Pesticide Regulation, which is administered by the Director of Pesticide Regulation. Current law requires the director to endeavor to eliminate from use a pesticide that endangers the agricultural or nonagricultural environment. Current law requires pesticides to be registered by the department, and requires that a pesticide be thoroughly evaluated prior to registration. Current law provides for the continued evaluation of registered pesticides. Current law requires the department, by July 1, 2018, to issue a determination with respect to its reevaluation of neonicotinoids and to adopt any control measures necessary to protect pollinator health within 2 years after making that determination. Current law provides that every person who violates a provision of any of certain laws relating to pesticides, or a regulation issued pursuant to any of those laws, is guilty of a misdemeanor and shall be punished by specified fines or by imprisonment of not more than 6 months, or both. This bill would require the department, by July 1, 2024, to issue a determination, taking into account the latest science, with respect to a reevaluation of neonicotinoid pesticides, as defined, on pollinating insects, aquatic ecosystems, and human health when used for the nonagricultural protection of outdoor ornamental plants, trees, and turf, and, by July 1, 2026, to adopt any control measures for that use that are determined by the department, based on the reevaluation, to be necessary to protect pollinating insects, aquatic ecosystems, and human health, as provided.

Position	Rank	Group
Watch	02 - Medium Priority	

[AB 557](#) (Hart D) Open meetings: local agencies: teleconferences.

Current Text: Amended: 6/19/2023 [html](#) [pdf](#)

Introduced: 2/8/2023

Last Amend: 6/19/2023

Status: 6/29/2023-Read second time. Ordered to third reading.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Calendar: 7/10/2023 #165 SENATE ASSEMBLY BILLS - THIRD READING FILE

Summary: The Ralph M. Brown Act requires, with specified exceptions, that all meetings of a legislative body of a local agency, as those terms are defined, be open and public and that all persons be permitted to attend and participate. The act contains specified provisions regarding providing for the ability of the public to observe and provide comment. The act allows for meetings to occur via teleconferencing subject to certain requirements, particularly that the legislative body notice each teleconference location of each member that will be participating in the public meeting, that each teleconference location be accessible to the public, that members of the public be allowed to address the legislative body at each teleconference location, that the legislative body post an agenda at each teleconference location, and that at least a quorum of the legislative body participate from locations within the boundaries of the local agency’s jurisdiction. The act provides an exemption to the jurisdictional requirement for health authorities, as defined. This bill would revise the authority of a legislative body to hold a teleconference meeting under those abbreviated teleconferencing procedures when a declared state of emergency is in effect. Specifically, the bill would extend indefinitely that authority in the circumstances under which the legislative body either (1) meets for the purpose of determining whether, as a result of the emergency, meeting in person would present imminent risks to the health or safety of attendees, or (2) has previously made that determination.

Position	Rank	Group

[AB 563](#) (Waldron R) State Department of Public Health.

Current Text: Introduced: 2/8/2023 [html](#) [pdf](#)

Introduced: 2/8/2023

Status: 5/5/2023-Failed Deadline pursuant to Rule 61(a)(3). (Last location was PRINT on 2/8/2023) (May be acted upon Jan 2024)

2 year	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Current law establishes the State Department of Public Health in the California Health and Human Services Agency. This bill would make a technical, nonsubstantive change to that provision.

Position	Rank	Group
Watch	03 - Low Priority	

AB 652

(Lee D) Department of Pesticide Regulation Environmental Justice Advisory Committee.

Current Text: Amended: 6/22/2023 [html](#) [pdf](#)

Introduced: 2/9/2023

Last Amend: 6/22/2023

Status: 7/5/2023-From committee: Do pass and re-refer to Com. on APPR. (Ayes 4. Noes 3.) (July 5). Re-referred to Com. on APPR.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf.	Enrolled	Vetoed	Chaptered
1st House				2nd House				Conc.			

Summary: Current law requires the Director of Pesticide Regulation, on or after January 1, 2025, to adopt regulations for the issuance and renewal of licenses and certificates for pest control operations for a 3-year period. This bill would require the Department of Pesticide Regulation, by January 1, 2025, to establish and convene a Department of Pesticide Regulation Environmental Justice Advisory Committee, as provided, that would provide recommendations to the department on ways to integrate environmental justice considerations into department programs, policies, decision making, and activities, and on how the department can improve its engagement with communities with the most significant exposure to pesticides. The bill would require the advisory committee to hold, at a minimum, quarterly meetings and to periodically post on the department’s internet website its recommendations. The bill would also require the department to periodically post on its internet website an update on its efforts to incorporate the advisory committee’s recommendations.

Position	Rank	Group
Watch	03 - Low Priority	

AB 740

(Gabriel D) Department of General Services: drone cybersecurity.

Current Text: Amended: 3/9/2023 [html](#) [pdf](#)

Introduced: 2/13/2023

Last Amend: 3/9/2023

Status: 4/28/2023-Failed Deadline pursuant to Rule 61(a)(2). (Last location was A. & A.R. on 3/21/2023)(May be acted upon Jan 2024)

Desk	2 year	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf.	Enrolled	Vetoed	Chaptered
1st House				2nd House				Conc.			

Summary: Would require the Department of General Services, in consultation with the Chief of the Office of Information Security, to adopt rules and regulations, by January 1, 2025, to ensure that each unmanned aircraft and unmanned aircraft system used by a government entity, as defined, in part, to include local governmental entities, for any purpose meets appropriate safeguards to ensure the confidentiality, integrity, and availability of any data collected, transmitted, or stored by that unmanned aircraft or unmanned aircraft system, as specified; and to specify requirements for a comprehensive plan to be adopted by a government entity to discontinue the use of noncompliant aircraft and systems, as specified. This bill would, beginning on the date the department adopts the rules and regulations, authorize a government entity to use unmanned aircraft or unmanned aircraft systems it did not previously use only if that aircraft or system complies with those rules and regulations. The bill would, by July 1, 2025, require a government entity that uses a noncompliant aircraft or system to submit to the department a comprehensive plan for discontinuing its use, as specified.

Position	Rank	Group
Watch	01 - High Priority	

AB 774

(Mathis R) Invasive pests: list.

Current Text: Introduced: 2/13/2023 [html](#) [pdf](#)

Introduced: 2/13/2023

Status: 5/19/2023-Failed Deadline pursuant to Rule 61(a)(5). (Last location was APPR. on 4/19/2023) (May be acted upon Jan 2024)

Desk	Policy	2 year	Floor	Desk	Policy	Fiscal	Floor	Conf.	Enrolled	Vetoed	Chaptered
1st House				2nd House				Conc.			

Summary: Current law requires the Department of Food and Agriculture to develop and maintain a list of invasive pests, defined to mean animals, plants, insects, and plant and animal diseases or groups of those animals, plants, insects, and plant and animal diseases where introduction into California would or would likely cause economic or environmental harm, that have a reasonable likelihood of entering California for which a detection, exclusion, eradication, control, or management action by the state might be appropriate. This bill would require the department to post the list on its internet website.

Position	Rank	Group

AB 828

(Connolly D) Sustainable groundwater management: managed wetlands.

Current Text: Amended: 4/17/2023 [html](#) [pdf](#)

Introduced: 2/13/2023

Last Amend: 4/17/2023

Status: 4/28/2023-Failed Deadline pursuant to Rule 61(a)(2). (Last location was W.,P. & W. on 3/2/2023)(May be acted upon Jan 2024)

Desk	2 year	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: The Sustainable Groundwater Management Act requires all groundwater basins designated as high- or medium-priority basins by the Department of Water Resources that are designated as basins subject to critical conditions of overdraft to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2020, and requires all other groundwater basins designated as high- or medium-priority basins to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2022, except as specified. Current law defines various terms for purposes of the act. This bill would add various defined terms for purposes of the act, including the term "managed wetland."

Position **Rank** **Group**

AB 1016 (Jones-Sawyer D) Pest control operations: aircraft operations: private applicator.

Current Text: Amended: 6/22/2023 [html](#) [pdf](#)

Introduced: 2/15/2023

Last Amend: 6/22/2023

Status: 7/5/2023-From committee: Do pass and re-refer to Com. on APPR. (Ayes 3. Noes 0.) (July 3). Re-referred to Com. on APPR.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Current law makes it unlawful for any person to operate an aircraft in pest control unless, among other things, the pilot operating the aircraft holds a valid manned or unmanned pest control aircraft pilot's certificate issued by the Director of Pesticide Regulation. Current law requires each unmanned pest control aircraft pilot's certificate to designate the pilot's status as a journeyman, apprentice, or vector control technician, and requires an applicant for a manned or unmanned pest control aircraft pilot's certificate to pass an examination as a condition of licensure. This bill would additionally include the status of private applicator as a designation under the unmanned pest control aircraft pilot's certificate. The bill would prohibit an individual with a private applicator unmanned pest control aircraft pilot's certificate from applying pesticides except for the purpose of producing an agricultural commodity on property owned, leased, or rented by the pilot or their employer.

Position **Rank** **Group**
Watch 01 - High Priority

AB 1042 (Bauer-Kahan D) Pesticides: seeds.

Current Text: Amended: 6/15/2023 [html](#) [pdf](#)

Introduced: 2/15/2023

Last Amend: 6/15/2023

Status: 6/30/2023-In committee: Set, first hearing. Hearing canceled at the request of author.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Would require the Director of Pesticide Regulation to adopt regulations to govern the use and disposal of seeds treated with a pesticide and to prohibit the use of seeds treated with a pesticide that meets specified conditions. Because a violation of these regulations would be a crime, the bill would impose a state-mandated local program. The bill would prohibit, on and after January 1, 2026, a person from selling, delivering, or using seeds treated with a pesticide if that pesticide is not registered for use. The bill would require, on and after January 1, 2025, a use report to be submitted by, or on behalf of, a grower to the director or a county agricultural commissioner when seeds treated with a pesticide are used by the grower in the state and would require the director or commissioner, on and after January 1, 2026, to annually report to the public the pounds of pesticides applied as seed treatment in California and the cumulative acres planted with seeds treated with a pesticide in California, as specified. By imposing this reporting requirement on county agricultural commissioners, this bill would create a state-mandated local program.

Position **Rank** **Group**
Watch 02 - Medium Priority

AB 1063 (Gabriel D) Nurse-to-patient staffing ratios: annual report.

Current Text: Amended: 4/27/2023 [html](#) [pdf](#)

Introduced: 2/15/2023

Last Amend: 4/27/2023

Status: 7/3/2023-In committee: Set, second hearing. Hearing canceled at the request of author.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf.	Enrolled	Vetoed	Chaptered
1st House				2nd House				Conc.			

Calendar: 7/12/2023 Upon adjournment of Environmental Quality Committee - 1021 O Street, Room 1200 SENATE HEALTH, EGGMAN, SUSAN TALAMANTES, Chair

Summary: Current law requires the State Department of Public Health to adopt regulations establishing minimum, specific, and numerical licensed nurse-to-patient ratios by licensed nurse classification and by hospital unit for all specified health facilities. Current law requires that the ratios establish the minimum number of registered and licensed nurses to be allocated, and requires additional staff to be assigned in accordance with documented patient classification systems. This bill would require the department to conduct an annual review of its enforcement of the regulations and submit a report to the Legislature on an annual basis.

Position **Rank** **Group**
 Watch 03 - Low Priority

[AB 1322](#) (Friedman D) Pesticides: second-generation anticoagulant rodenticide: diphacinone.

Current Text: Amended: 7/3/2023 [html](#) [pdf](#)

Introduced: 2/16/2023

Last Amend: 7/3/2023

Status: 7/3/2023-Read second time and amended. Re-referred to Com. on N.R. & W.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf.	Enrolled	Vetoed	Chaptered
1st House				2nd House				Conc.			

Calendar: 7/10/2023 Upon adjournment of Military and Veterans Affairs Committee - 1021 O Street, Room 2200 SENATE NATURAL RESOURCES AND WATER, MIN, DAVE, Chair

Summary: Current law regulates the use of pesticides and authorizes the Director of Pesticide Regulation to adopt regulations to govern the possession, sale, or use of any pesticide, as prescribed. Current law prohibits the use of second-generation anticoagulant rodenticides in wildlife habitat areas. Current law additionally prohibits the use of second-generation anticoagulant rodenticides, as defined, in the state until the director certifies to the Secretary of State that, among other things, the Department of Pesticide Regulation, in consultation with the Department of Fish and Wildlife, has adopted any additional restrictions necessary to ensure that continued use of second-generation anticoagulant rodenticides is not reasonably expected to result in significant adverse effects to nontarget wildlife, as provided. Current law exempts the use of second-generation anticoagulant rodenticides from these prohibitions under certain circumstances. Current law requires the director, and each county agricultural commissioner under the direction and supervision of the director, to enforce the provisions regulating the use of pesticides. A violation of these provisions is a misdemeanor. This bill would also prohibit the use of diphacinone in a wildlife habitat area and in the state and would generally apply the above provisions and other related requirements to diphacinone.

Position **Rank** **Group**

[AB 1484](#) (Zbur D) Temporary public employees.

Current Text: Amended: 5/18/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Last Amend: 5/18/2023

Status: 6/14/2023-Referred to Com. on L., P.E. & R.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf.	Enrolled	Vetoed	Chaptered
1st House				2nd House				Conc.			

Calendar: 7/12/2023 9:30 a.m. - 1021 O Street, Room 2200 SENATE LABOR, PUBLIC EMPLOYMENT AND RETIREMENT, CORTESE, DAVE, Chair

Summary: (1)Existing law, the Meyers-Milias-Brown Act (act), authorizes local public employees, as defined, to form, join, and participate in the activities of employee organizations of their own choosing for the purpose of representation on matters of labor relations. Existing law generally requires that the scope of representation under the act include all matters relating to employment conditions and employer-employee relations, while excepting the consideration of the merits, necessity, or organization of any service or activity provided by law or executive order. Existing law states that the Legislature finds and declares that the duties and responsibilities of local agency employer representatives under the act are substantially similar to the duties and responsibilities required under existing collective bargaining enforcement procedures and therefore the costs incurred by the local agency employer representatives in performing those duties and responsibilities under that act are not reimbursable as state-mandated costs. This bill would impose specified requirements with respect to the temporary employees, as defined, of a public employer who have been hired to perform the same or similar type of work that is performed by permanent employees represented by a recognized employee organization. In this regard the bill would require those temporary employees to be automatically included in the same bargaining unit as the permanent employees, as specified, upon the request of the recognized employee organization. The bill would also require a public employer to, upon hire, provide each temporary employee with their job description, wage rates, and eligibility for

benefits, anticipated length of employment, and procedures to apply for open, permanent positions. By imposing new duties on local agencies that employ temporary employees, the bill would impose a state-mandated local program. The bill would require complaints alleging a violation of its provisions to be processed as unfair practice charges under the act. The bill would additionally include the same findings and declarations as set forth above. This bill contains other related provisions and other existing laws.

Position **Rank** **Group**
 Watch 01 - High Priority

AB 1662 **(Quirk-Silva D) State Department of Public Health.**

Current Text: Introduced: 2/17/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Status: 5/5/2023-Failed Deadline pursuant to Rule 61(a)(3). (Last location was PRINT on 2/17/2023) (May be acted upon Jan 2024)

2 year	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Existing law establishes the State Department of Public Health, and transferred the responsibility for specified health programs from the former State Department of Health Services to the State Department of Public Health, as prescribed. This bill would make technical, nonsubstantive changes to that provision.

Position **Rank** **Group**
 Watch 03 - Low Priority

AB 1712 **(Irwin D) Personal information: data breaches.**

Current Text: Amended: 4/27/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Last Amend: 4/27/2023

Status: 6/14/2023-Referred to Com. on JUD.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: The Information Practices Act of 1977 requires any agency that owns or licenses computerized data that includes personal information to disclose any breach of the security of the system following discovery or notification of the breach, as specified. The act also requires any agency that maintains computerized data that includes personal information that the agency does not own to notify the owner or licensee of the information of any breach of the security of the data, in accordance with certain procedures. Current law requires the security breach notification to include specified information, including, among other things, the names and addresses of the major credit reporting agencies. Current law authorizes the security breach notification to include, at the discretion of the agency, among other things, advice on steps that people whose information has been breached may take to protect themselves. This bill would additionally require the security breach notification to include the internet websites of the major credit reporting agencies and the Uniform Resource Locator for the main internet website operated by the Federal Trade Commission to provide information for victims of identity theft.

Position **Rank** **Group**
 Watch 03 - Low Priority

AB 1752 **(Committee on Agriculture) Bees: pesticides: civil penalties.**

Current Text: Amended: 4/17/2023 [html](#) [pdf](#)

Introduced: 2/21/2023

Last Amend: 4/17/2023

Status: 6/28/2023-In Senate. Held at Desk.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Current law requires the Director of Pesticide Regulation to adopt regulations necessary to minimize the hazard to bees, while still providing for the reasonable and necessary application of pesticides toxic to bees to blossoming plants, as specified. Under current law, a failure to comply with those regulations is subject to a civil penalty of not more than \$500 for each day that the violation continues and, after a warning notice of 7 days is given, is an infraction. In addition to the civil penalty and infraction described above, this bill would authorize a county agricultural commissioner, in lieu of a civil prosecution by the director, to levy a civil penalty of not more than \$3,000 per violation against a person violating those regulations, as specified.

Position **Rank** **Group**
 Watch 01 - High Priority

SB 23 **(Caballero D) Water supply and flood risk reduction projects: expedited permitting.**

Current Text: Amended: 5/1/2023 [html](#) [pdf](#)

Introduced: 12/5/2022

Last Amend: 5/1/2023

Status: 5/19/2023-Failed Deadline pursuant to Rule 61(a)(5). (Last location was APPR. SUSPENSE FILE on 5/15/2023)(May be acted upon Jan 2024)

Desk	Policy	2 year	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered	
1st House				2nd House								

Summary: Current law prohibits an entity from substantially diverting or obstructing the natural flow of, or substantially changing or using any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, except under specified conditions, including requiring the entity to send written notification to the Department of Fish and Wildlife regarding the activity in the manner prescribed by the department. This bill would require a project proponent, if already required to submit a notification to the department, to submit to the department the certified or adopted environmental review document, as applicable, for the activity in the notification. The bill would require the department, under prescribed circumstances, to take certain actions within specified timelines, or within a mutually agreed-to extension of time.

Position **Rank** **Group**

SB 411

(Portantino D) Open meetings: teleconferences: neighborhood councils.

Current Text: Amended: 4/24/2023 [html](#) [pdf](#)

Introduced: 2/9/2023

Last Amend: 4/24/2023

Status: 5/26/2023-Referred to Com. on L. GOV.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered	
1st House				2nd House								

Calendar: 7/12/2023 9:30 a.m. - State Capitol, Room 126 ASSEMBLY LOCAL GOVERNMENT, CARRILLO, JUAN, Chair

Summary: The Ralph M. Brown Act requires, with specified exceptions, that all meetings of a legislative body, as defined, of a local agency be open and public and that all persons be permitted to attend and participate. The act generally requires for teleconferencing that the legislative body of a local agency that elects to use teleconferencing post agendas at all teleconference locations, identify each teleconference location in the notice and agenda of the meeting or proceeding, and have each teleconference location be accessible to the public. Current law also requires that, during the teleconference, at least a quorum of the members of the legislative body participate from locations within the boundaries of the territory over which the local agency exercises jurisdiction. The act provides an exemption to the jurisdictional requirement for health authorities, as defined. This bill, until January 1, 2028, would authorize an eligible legislative body to use alternate teleconferencing provisions related to notice, agenda, and public participation, as prescribed, if the city council has adopted an authorizing resolution and 2/3 of an eligible legislative body votes to use the alternate teleconferencing provisions. The bill would define "eligible legislative body" for this purpose to mean a neighborhood council that is an advisory body with the purpose to promote more citizen participation in government and make government more responsive to local needs that is established pursuant to the charter of a city with a population of more than 3,000,000 people that is subject to the act.

Position **Rank** **Group**
Watch 03 - Low Priority

SB 511

(Blakespear D) Greenhouse gas emissions inventories.

Current Text: Amended: 4/24/2023 [html](#) [pdf](#)

Introduced: 2/14/2023

Last Amend: 4/24/2023

Status: 6/20/2023-From committee: Do pass and re-refer to Com. on APPR. with recommendation: To consent calendar. (Ayes 11. Noes 0.) (June 19). Re-referred to Com. on APPR.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered	
1st House				2nd House								

Summary: The California Global Warming Solutions Act of 2006 requires the State Air Resources Board to prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions and to update the scoping plan at least once every 5 years. This bill would require the state board, before January 1, 2028, to develop, and publish on its internet website, a report on greenhouse gas emissions inventories for the calendar year 2025 for each city, county, or city and county that requests inclusion in the report, as provided. The bill would require the state board, consistent with the preparation of the updates to the scoping plan and before January 1, 2033, and every 5 years thereafter, to update the inventories, for each city, county, or city and county that requests inclusion in the respective update, for the calendar year 2030 and every 5th

year thereafter. The bill would authorize the state board to solicit bids and enter into contracts for the development of the inventories. The bill would require the state board, before January 1, 2026, to establish a local government advisory committee to inform its development of the greenhouse gas emissions inventories.

Position **Rank** **Group**

SB 597 **(Glazer D) Building standards: rainwater catchment systems.**

Current Text: Amended: 6/22/2023 [html](#) [pdf](#)

Introduced: 2/15/2023

Last Amend: 6/22/2023

Status: 6/22/2023-Read second time and amended. Re-referred to Com. on APPR.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Calendar: 7/12/2023 9 a.m. - 1021 O Street, Room 1100 ASSEMBLY APPROPRIATIONS, HOLDEN, CHRIS, Chair

Summary: Current law makes the California Building Standards Commission responsible for the publication of an updated edition of the California Building Standards Code every 3 years. This bill would require the department to conduct research and develop recommendations regarding building standards for the installation of rainwater catchment systems in newly constructed residential dwellings and would authorize the department to propose related building standards to the commission for consideration, as specified. The bill would authorize the department to expend moneys from the Building Standards Administration Special Revolving Fund for the above-described purposes, upon appropriation by the Legislature, as specified. The bill would require the department, on or before January 1, 2025, to provide a report to specified committees of the Legislature regarding the outcomes of its research and the recommendations developed.

Position **Rank** **Group**

SB 732 **(Menjivar D) Bats.**

Current Text: Amended: 6/27/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Last Amend: 6/27/2023

Status: 6/27/2023-Read third time and amended. Ordered to third reading.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Calendar: 7/10/2023 #43 ASSEMBLY THIRD READING FILE - SENATE BILLS

Summary: Current law establishes the state flag and the state’s emblems, including, among other things, the California redwood as the official state tree and the California gray whale as the official state marine mammal. This bill would establish the pallid bat (*Antrozous pallidus*) as the official state bat.

Position **Rank** **Group**

Watch 03 - Low Priority

SB 862 **(Laird D) Santa Cruz Metropolitan Transit District: transaction and use tax rates.**

Current Text: Amended: 6/29/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Last Amend: 6/29/2023

Status: 6/29/2023-Read second time and amended. Re-referred to Com. on REV. & TAX. (Amended 6/29/2023)

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Calendar: 7/10/2023 2:30 p.m. or Upon Adjournment of Senate Session - State Capitol, Room 437 ASSEMBLY REVENUE AND TAXATION, IRWIN, JACQUI, Chair

Summary: The Santa Cruz Metropolitan Transit District Act of 1967, authorizes the County of Santa Cruz to organize and incorporate the Santa Cruz Metropolitan Transit District, as provided. Current law, among other things, authorizes the board of directors of the district to impose transactions and use taxes in accordance with the Transactions and Use Tax Law by an ordinance approved by 2/3 of the electors voting on the measure at a special election called for that purpose. Current law provides that, notwithstanding the 2% combined rate limit under the Transactions and Use Tax Law, a transactions and use tax rate imposed by the board pursuant to these provisions on or before January 1, 2020, are not considered for purposes of that combined rate limit. This bill would authorize the board to impose a retail transactions and use tax after January 1, 2024, that is excluded from the 2% combined rate limit, if the board adopts an ordinance approving the tax before January 1, 2035, and if the total tax rate excluded under the authority added by the bill does not exceed 1/2 %.

Position

Rank

Group

[SB 878](#)

(Committee on Governance and Finance) Validations.

Current Text: Chaptered: 6/29/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Status: 6/29/2023-Approved by the Governor. Chaptered by Secretary of State. Chapter 30, Statutes of 2023.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Would enact the First Validating Act of 2023, which would validate the organization, boundaries, acts, proceedings, and bonds of the state and counties, cities, and specified districts, agencies, and entities. This bill contains other related provisions.

Position

Rank

Group

[SB 879](#)

(Committee on Governance and Finance) Validations.

Current Text: Chaptered: 6/29/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Status: 6/29/2023-Approved by the Governor. Chaptered by Secretary of State. Chapter 31, Statutes of 2023.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Would enact the Second Validating Act of 2023, which would validate the organization, boundaries, acts, proceedings, and bonds of the state and counties, cities, and specified districts, agencies, and entities. This bill contains other related provisions.

Position

Rank

Group

[SB 880](#)

(Committee on Governance and Finance) Validations.

Current Text: Chaptered: 6/29/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Status: 6/29/2023-Approved by the Governor. Chaptered by Secretary of State. Chapter 32, Statutes of 2023.

Desk	Policy	Fiscal	Floor	Desk	Policy	Fiscal	Floor	Conf. Conc.	Enrolled	Vetoed	Chaptered
1st House				2nd House							

Summary: Would enact the Third Validating Act of 2023, which would validate the organization, boundaries, acts, proceedings, and bonds of the state and counties, cities, and specified districts, agencies, and entities.


Position

Rank

Group

Total Measures: 30

Total Tracking Forms: 30

 <p><i>Serving Public Health Since 1928</i></p>	<p>Coachella Valley Mosquito and Vector Control District</p> <p>Staff Report</p>	<p>July 11, 2023</p>
<p>Agenda Item: Informational Item</p> <p>Staff report from: National Emergency Management Training, June 11-17, 2023, Emmitsburg, Maryland</p>		

Overview:

Foundations of Emergency Management training presents the fundamental aspects of emergency management and the application of that knowledge to managing people. An individual's ability to function effectively relates to their understanding of how the emergency management system works, how their agency or organization fits into the network, and how people work together effectively to achieve the desired outcomes.

This 5-day course focused on approaching emergency management as a whole community. Topics included community preparedness, intergovernmental response, mitigation, and legal considerations. The course closed with an exercise to practice creating information flows between government agencies that have not worked together before.

This is a grant funded training through FEMA in which the District did not fund travel or lodging for participating.

Attendee:

Tammy Gordon, Public Information Manager

 <p>Serving Public Health Since 1928</p>	<p align="center">Coachella Valley Mosquito and Vector Control District</p> <p align="center">Staff Report</p>	<p align="center">July 11, 2023</p>
<p>Agenda Item: Informational Item</p> <p>District Travel for the Board of Trustees</p>		
<p>Background:</p> <p>CSDA Annual Conference and Exhibitor Showcase 2023 (August 28-31, 2023)</p> <p>The CSDA Annual Conference is a three-day education and networking event where attendees can develop new partnerships, expand your horizons with inspiring and motivating keynote sessions, and learn about the latest in special district technology, management playbooks, and legal trends. https://www.csdanet.org/annualconference/home</p> <p>Requests to attend must be made by July 31, 2023 VIA EMAIL: MTALLION@CVMOSQUITO.ORG.</p>		
<p>Strategic Business Plan Alignment:</p> <p>Goal 2 – Governance and HR – A strong culture supports the Board and staff team that grows in skill, teamwork, and experience.</p> <p>Objective 2.4 – Establish conditions that ensure the Board of Trustees are engaged and productive and possess a deep understanding of the District.</p>		



Serving Public Health Since 1928

SEMI-ANNUAL RESEARCH REPORTS



Serving Public Health Since 1928

Coachella Valley Mosquito and Vector Control District

Staff Report

July 11, 2023

Agenda Item: Informational Item

Semi-annual research reports from the University of California, Davis, University of California, Riverside, Mount Sinai School of Medicine, and the USDA for 2023 – **Jennifer A. Henke, M.S.,**

Laboratory Manager

Background:

The Research Department (Department 600) supports cooperative work with the University of California system and other research institutions for conducting mosquito-borne disease and vector research, optimizing control measures for vectors, and understanding vector biology. The proposals include examining control interventions to predict when to better time future applications; using mosquito excreta as another method of virus testing for remote locations; using biological control organisms to target adult mosquitoes in storm water systems; examining control strategies for house flies; and examining native ant populations that may interact with red imported fire ants. Each of the proposals was approved by the Research Committee and later approved by the full Board of Trustees at a November Board Meeting. The work is part of the 2022 Strategic Plan goal 5.2.

As described in District's Research Funding Policy and Procedure, researchers are to provide semiannual progress reports. The projects below were approved for funding at the November 2022 board meeting. The reports are from the following proposals:

- 1. Icahn School of Medicine at Mount Sinai (Dr. N. DeFelice)**
 - Forecasting West Nile Virus under extreme conditions
- 2. UC Davis (Dr. L. Coffey)**
 - Evaluating metagenomic arbovirus detection using nanopore sequencing: a field-forward sequencing approach
- 3. UC Riverside (Dr. A. Gerry)**
 - Attractive toxic sugar baits to control house flies near crop fields
- 4. UC Riverside (Dr. A. Gerry and Mr. D. Popko)**
 - Attractive toxic sugar bait stations and integrated mosquito management in underground storm drain systems in the Coachella Valley
- 5. USDA (Dr. D. Oi)**
 - Determining fire ant bait specificity to extend fire ant control by conserving non-target ants

Recommendation:

To accept the reports as presented

Attachments:

Reports from Dr. DeFelice, Dr. Coffey, Dr. Gerry, Mr. Popko, and Dr. Oi

Strategic Business Plan Alignment:

Goal 5.2 – Validate and improve vector control programs through applied scientific research.

Forecasting West Nile Virus under extreme conditions

Nicholas DeFelice, Meytar Sorek-Hamer, Aman Patel, Matthew J. Ward

Narrative

We are at an exciting juncture in infectious disease modeling: the point at which forecasting disease outbreak characteristics has evolved from an idea to an achievable reality. West Nile virus (WNV) is the leading domestically acquired arbovirus in the United States and ecologically informed forecast tools of WNV transmission hold promise for improving management decisions for abatement and public health interventions. We propose to expand our current research developing a WNV forecast system, by tailoring it to the unique desert climate and extreme temperatures in Coachella Valley (CV). Recently we developed an environmentally forced forecast for CV substantiating cooler July's are associated with greater WNV risk. Here we aim to combine our environmentally forced forecast for CV with our compartmental vector-borne disease models describing West Nile virus (WNV) to more appropriately account for high temperatures and provide more robust spatially refined forecasts. Integrating both real-time current environment and mosquito monitoring data and their association with WNV amplification along with a biologically informed mathematical model describing the interactions between birds, mosquitoes and humans will allow for more certainty in the development of spatial/temporal risk predictions of WNV for improved mosquito management decisions. We will build off current mosquito monitoring and begin to align monitoring data with real-time environmental modeling data that provides fine spatial resolution of the variability in physical environmental factors (e.g., temperature and hydrology), all of which influence mosquito development, WNV transmission dynamics, and the potential risk of human spillover infections. We will leverage statistical techniques and environmental monitoring to develop spatially refined risk maps of WNV thus giving public health and vector abatement districts additional data to understand the process of how arboviruses amplify at a fine spatial scale. Using these high resolutions environmental variables, we will begin to identify groupings and relationships between trap data and environmental indicators of viral activity over time. Such high-resolution monitoring at the watershed and micro-climate level will enable a more comprehensive depiction of the small-scale hydrologic variability associated with focal and sporadic WNV amplification and transmission, potentially allowing such events to be detected and eventually predicted. Highly resolved maps will further allow for appropriately timed interventions, such as public health warnings, or more intense and targeted mosquito control efforts in the region of concern. The objectives of this proposal align with the Coachella Valley Mosquito and Vector Control District objective of identifying new tools for public health management to reduce the amount of pesticide that goes into the environment while maximizing their impact on disrupting the WNV transmission cycle.

Aim 1. Develop a parsimonious model to include an environmental factor and a temperature-forcing parameter that modulates the zoonotic transmission of WNV between mosquito vectors and avian hosts under extreme conditions.

Aim 2. Develop an ensemble model that combines our extreme temperature forced model with our environmentally informed statistical model to make real-time spatially refined WNV forecasts.

Aim 3. Integrate the high-resolution risk maps of the probability of WNV infected mosquitoes into a web-based platform to better communicate the spatial risk of WNV and skill of WNV forecasts. This will help guide the timing of two key mosquito control interventions: larviciding—insecticide applications targeting mosquito larvae, and adulticiding— insecticide applications targeting adult mosquitoes.

Status

Aim 1. Develop a parsimonious model to include an environmental factor and a temperature-forcing parameter that modulates the zoonotic transmission of WNV between mosquito vectors and avian hosts under extreme conditions.

We are still in the initial stages of understanding the role temperature and humidity play within the mosquito population. In Figure 1, the mosquito population when normalized by trap night, generally exhibits a pronounced bimodal structure peaking in late spring to early summer (~CDC week 16) before drastically declining during the summer (~CDC week 30) during peak maximum daily ATMP and rebounding during the fall (~CDC week 40). Conversely, the I_M peaks during the summer (~CDC week 30) corresponding to the peak in average minimum daily temperature (Figure 1), however. This bimodal trend is also seen when comparing mosquito population to relative humidity, Figure 2. The drop in relative humidity is associated with the initial drop in mosquito populations in early summer. We are still working to better understand the relationship humidity and temperature has on vector abundance and infection rates at the county level.

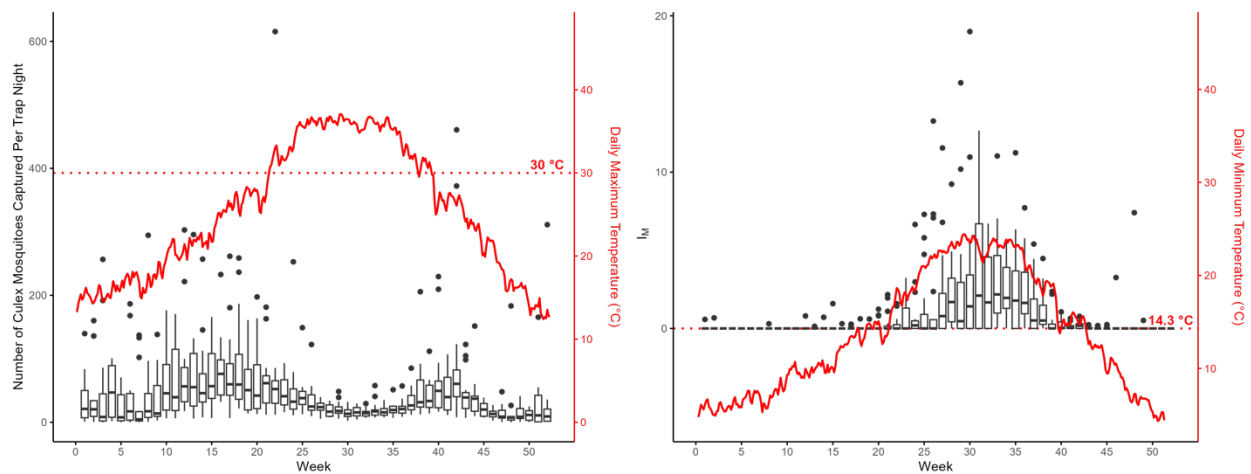


Figure 1. Historical CV *Culex* mosquito abundance, I_M and ATMP between 2006 - 2022. Left: Weekly mean number of mosquitoes trapped per night (boxplot, dots = outliers > 2*SD), maximum daily ATMP (red line), and temperature threshold for mosquito population decline (30 °C, red dotted line). Right: Average weekly I_M (boxplot, dots = outliers > 2*SD), minimum daily ATMP (red line), and temperature threshold for viral amplification (14.3 °C, black dashed line)

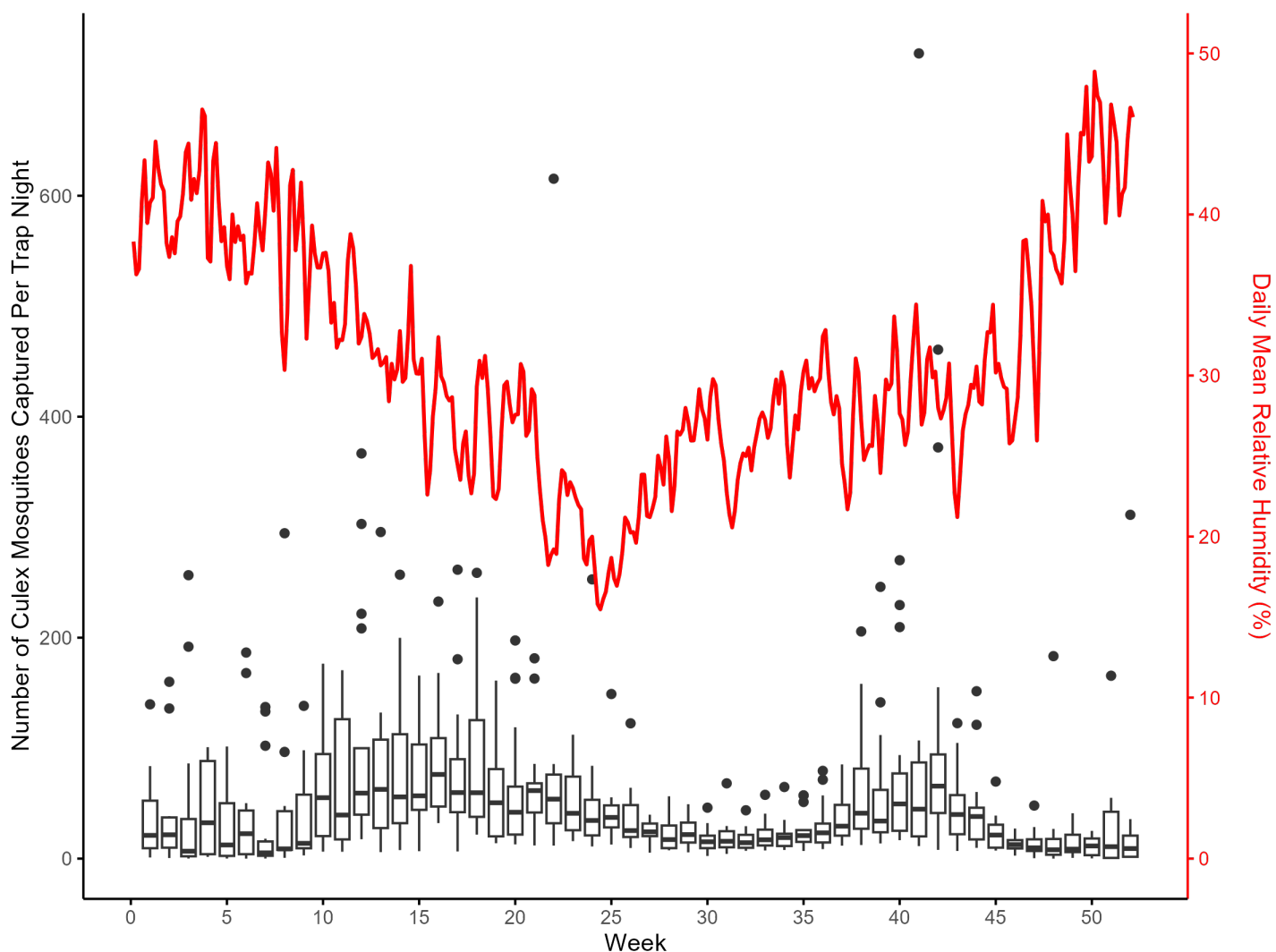


Figure 2. Historical CV *Culex* mosquito abundance between 2006 - 2022. Weekly mean number of mosquitoes trapped per night (boxplot, dots = outliers $> 2 \times SD$), daily relative humidity (red line).

Aim 2. Develop an ensemble model that combines our extreme temperature forced model with our environmentally informed statistical model to make real time spatially refined WNV forecasts.

Building on Aim 1, we have generated environmental groupings from a combination of hydrology and meteorological conditions to identify the most relevant combination of environmental conditions for viral amplification. Furthermore, we have developed a robust inference system able to improve our current understanding of how meteorological and hydrological conditions over time influence WNV activity. Ideally this will improve the effectiveness of public health interventions. Mosquito trapping data was used to calculate the WNV infection rate at the annual time step using the maximum likelihood estimate (MLE) and different remote sensing platform scales (NLs DAS 13km², Figure 3). Model testing is currently underway using remote sensing variables including surface temperature and evapotranspiration from the ECOSTRESS platform (70m resolution) to develop even higher resolution risk predictions of when a trap 1st tests positive. Here we present results for the larger spatial scales NLDAS (13km²) using evapotranspiration and atmospheric temperature. *Culex* species are currently aggregated. While historically, we see *Cx. tarsalis* in greater abundance than *Cx. quinquefasciatus* (Figure 4). We have employed a multi-model average prediction of different combinations of meteorological and hydrological data (i.e., temperature and evapotranspiration). By developing a multi-model inference system, we are providing formal probabilistic interpretation across the disparate individual model predictions, determining which models align; with the ensemble indicating an association between

environmental conditions and the increased risk of WNV infection rates. Figure 5 shows the environmental conditions that are associated with the increased risk of WNV infection rates. The model results show that a cool, dry winter, followed by a warm, wet spring followed by a cooler than normal summer increase the risk of WNV.

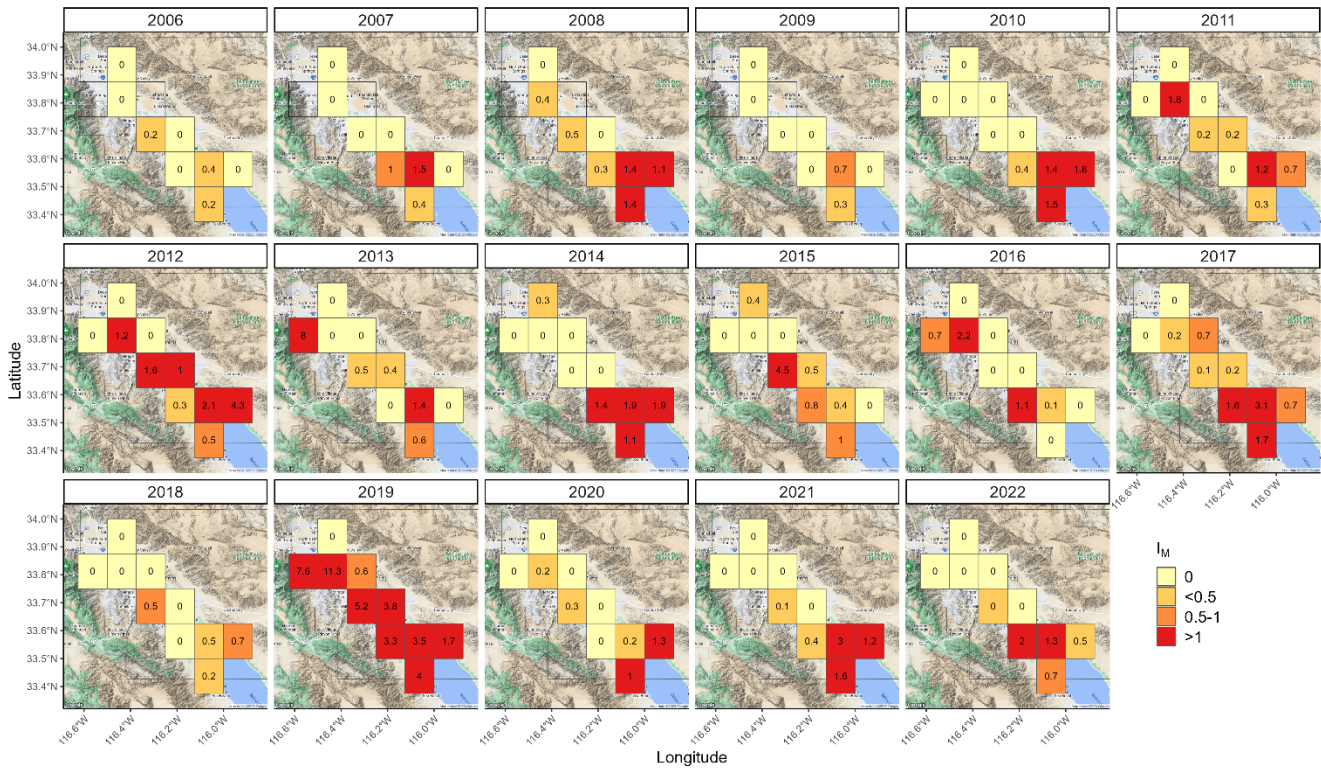


Figure 3. Annual WNV infection rate per 1,000 *Culex* mosquitoes tested (I_M) at the NLDAS scale (13 km² grid) in the Coachella Valley, CA.

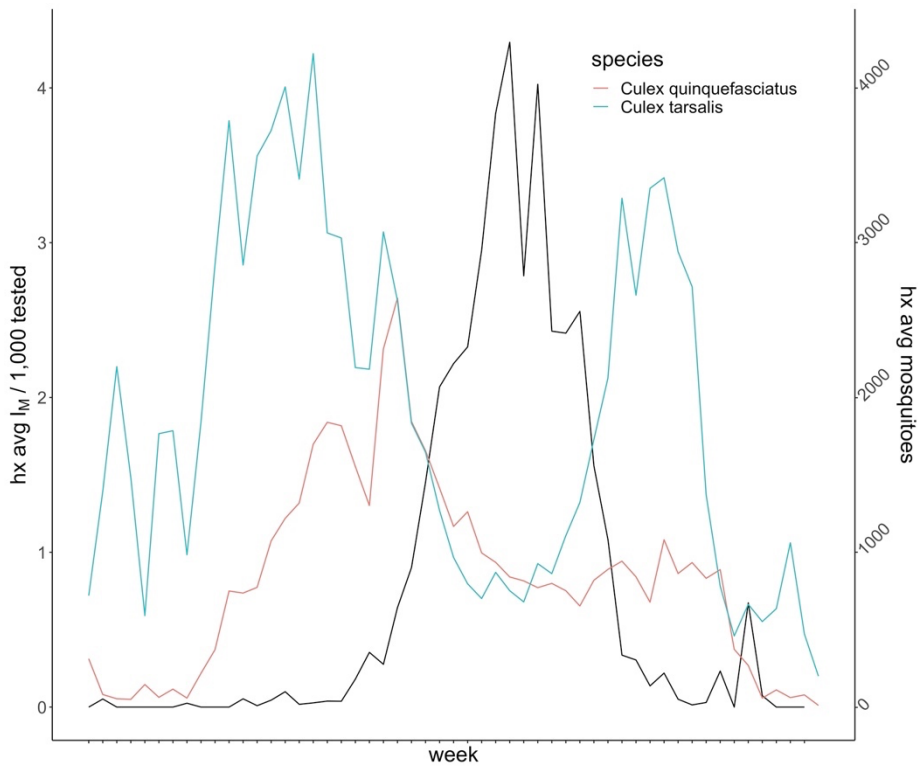


Figure 4. Weekly infections per 1,000 of *Culex* mosquitoes tested (black), the number of female *Culex quinquefasciatus* (red). and *Culex tarsalis* (green) mosquitoes trapped in the Coachella Valley, CA; 2006 - 2022. *Cx. quinquefasciatus* and *Cx. tarsalis* are combined for the infection rate (black).

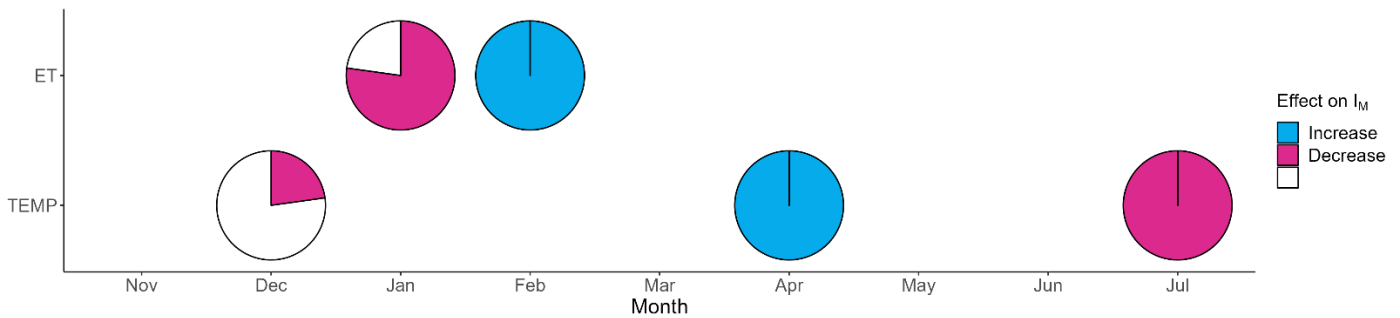


Figure 5. Scatter-pie of four predictor model ensemble indicating proportion and effect (positive or negative) of evapotranspiration (ET) and atmospheric temperature (ATMP) per month at the NLDAS scale in the Coachella Valley, CA; 2006 - 2021.

Aim 3. Integrate the high-resolution risk maps of the probability of WNV infected mosquitoes into a web-based platform to better communicate the spatial risk of WNV and skill of WNV forecasts. This will help guide the timing of two key mosquito control interventions: larviciding—insecticide applications targeting mosquito larvae, and adulticiding—insecticide applications targeting adult mosquitoes.

Building on Aims 1 & 2 we have used our ensemble model results and both seasonal and geographical (NLDAS) scales to map the infection rate of WNV in the CV (Figures 6 and 7 were seasonal spatial forecasts).

Generally, these models indicate that a dry winter followed by a wetting period and a warm spring followed by a cooler-than-normal summer increase the risk of WNV and are the best predictors of WNV rates in CV. Furthermore, we have mapped these forecasts and their prediction rates for NLDAS and evaluated the forecast accuracy by grid cell for 2023 (Figure 7). Forecasts were deemed accurate if a prediction was above or below 1 infected mosquito per 1,000 tested in each grid cell. One infected mosquito per 1,000 tested annually represents around the 75th percentile and what we defined as high risk for transmission.

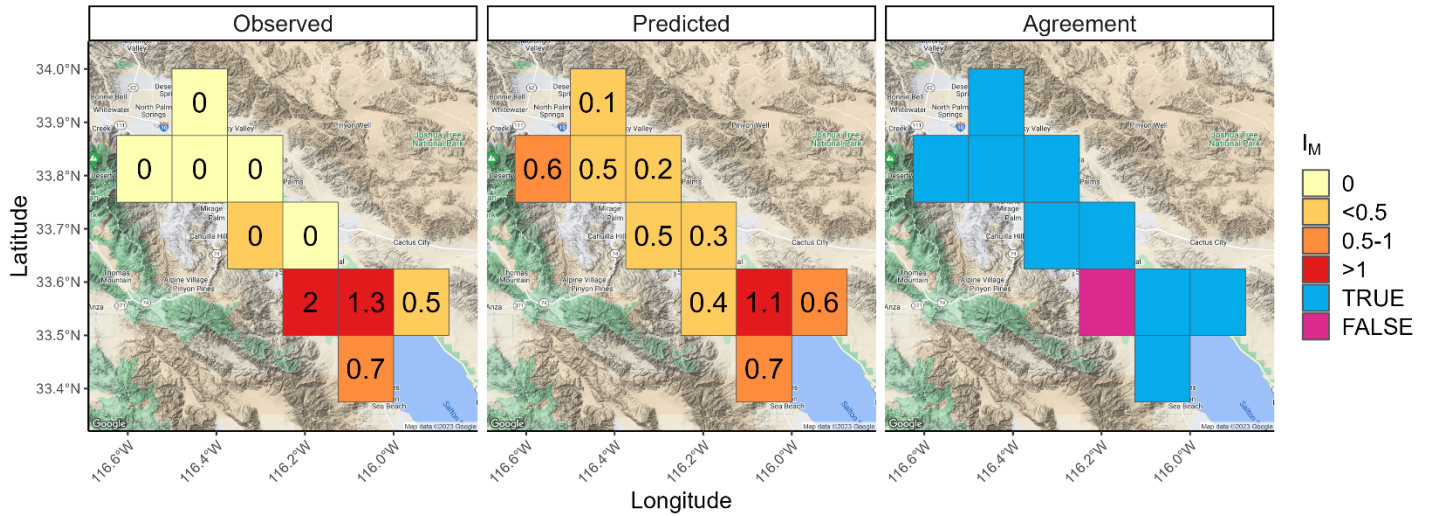


Figure 6. Left; observed infection rate (infected mosquitoes/1,000 mosquitoes tested) in 2022. Center; predicted infection rate of mosquitoes in 2022 using four predictor model. Right; Cells agreeing with 4-predictor ensemble model using a ≤ 1 mosquito/1000 tested cutoff at the NLDAS spatial scale for the Coachella Valley, CA.

Real-Time Forecast for 2023

Here we present an environmentally informed ensemble forecast of the annual *Culex* mosquito West Nile virus (WNV) annual infection rates at a 13 km² resolution for 2023 generated in June of 2023. This forecast was generated for Coachella Valley, CA using a multi-model inference system that was calibrated using data from 2006 to 2021.

The multimodal inference system was generated using a 4-parameter model, which accounted for all monthly combinations of evapotranspiration and atmospheric temperature from November to July. We used a combination of the best fitting models based on their goodness of fit (Akaike Information Criteria [AICc]), where all models with all parameters statistically significant were included. The Akaike weights are calculated to include the top 95% of models. Four models were identified to provide a combination of environmental events to help explain the environmental factors that are associated with WNV mosquito infection rate amplification. These factors were a cooler than normal December, a drier than normal January, followed by a wetter than normal February, a warm April, and a cooler July. This inference system was calibrated using data from 2006 to 2021, then forecasts were generated to identify areas of concern in 2022. Areas of concern were defined as an annual infection rate greater than 1 infectious mosquito per 1,000 tested. Retrospectively, this 4-predictor ensemble forecast was able to correctly predict if the area was above or below the annual infection rate greater than 1 infectious mosquito per 1,000 tested 90% of the time in 2022. Here we generated environmentally informed forecasts using environmental data through May 2023, Figure 7, where 1 NLDAS grid cell is above 1 and 9 are below.

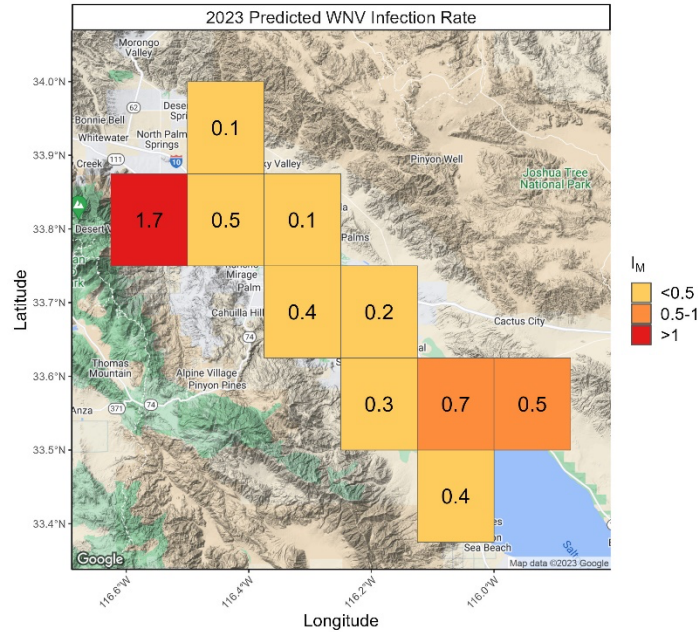


Figure 7. A 13 km² forecast of annual infectious mosquitoes for 2023, using available NLDAS data from November 2022 to May 2023.

Web Application for Data and Forecast Visualization

Here we present an R Shiny App for mosquito and environmental data visualization, as well as WNV forecast visualizations at county, NLDAS, and ECOSTRESS spatial scales. As shown in the sidebar of Figure 7, users will be able to test how future environmental conditions will affect the annual WNV infection rate prediction. The application is undergoing continued development and should be available for end-user testing in the fall of 2023.

West Nile Virus Mosquito and Environmental Data Visualization

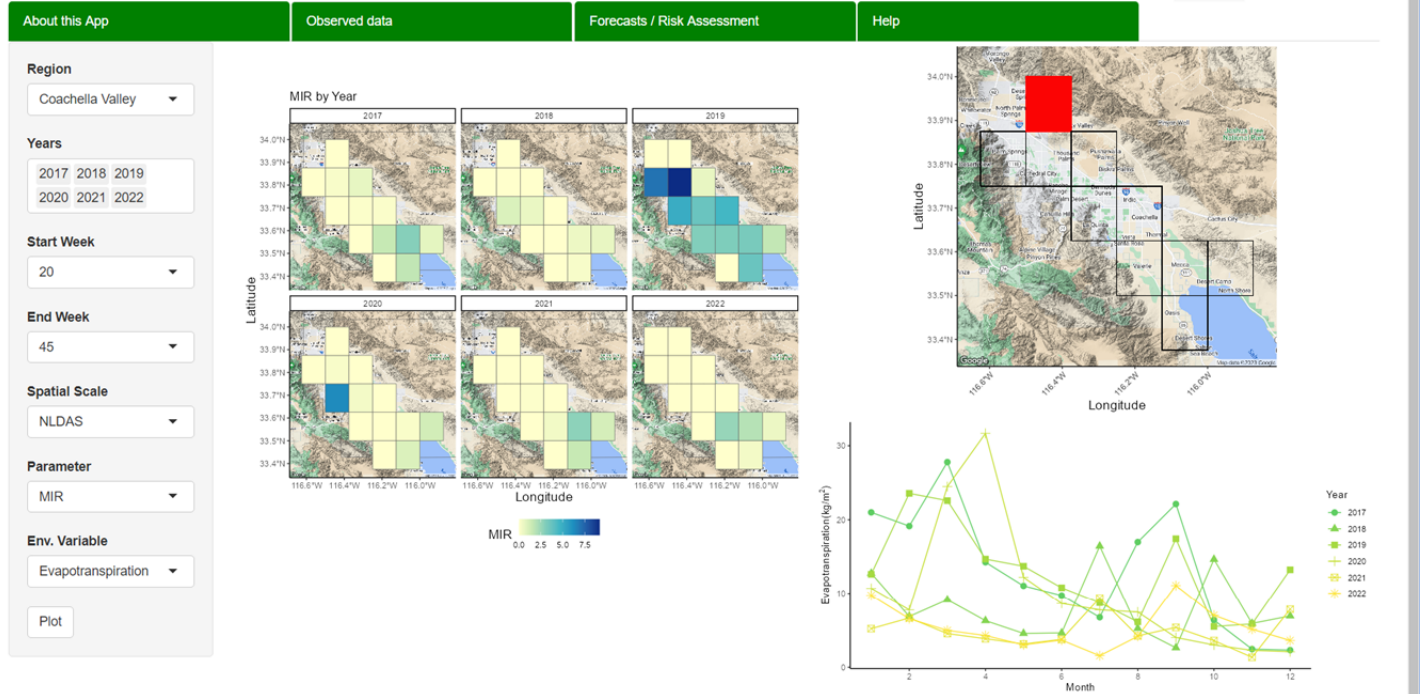


Figure 8. Mosquito and environmental data visualization at NLDAS spatial scale. Left; Sidebar with user inputs for plot generation. Center; Mosquito WNV minimum infection rates by NLDAS cell for 2017 - 2022. Right; Monthly total evapotranspiration in 2017-2022 for the selected NLDAS cell (red).

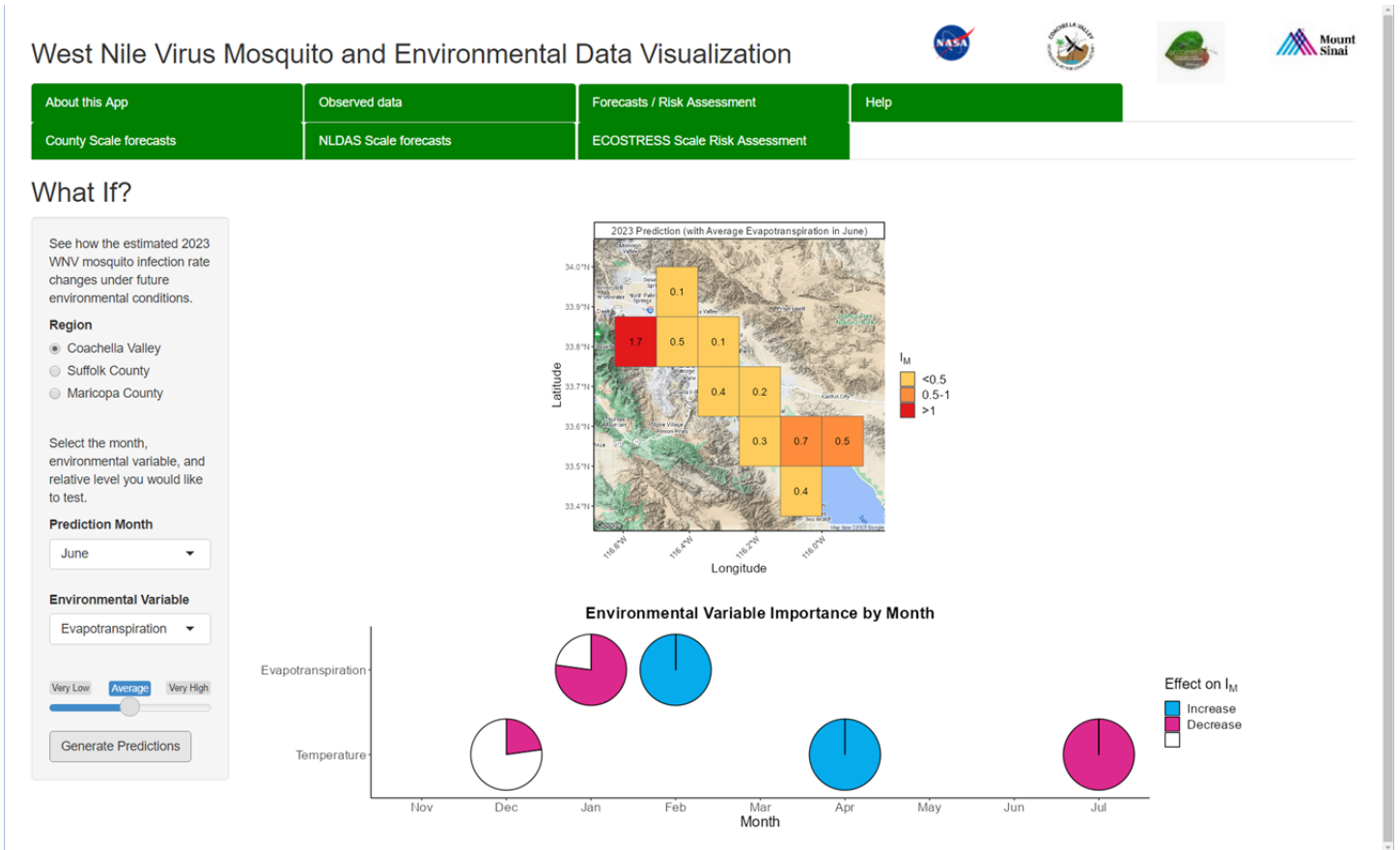


Figure 9. Real-time 2023 forecast of mosquito WNV infection rates at NLDAS spatial scale. Left; Sidebar with user inputs for plot generation. Top Right; Forecast map of 2023 predicted mosquito WNV infection rate by NLDAS cell. Bottom Right; Scatter-pie of four predictor model ensemble indicating proportion and effect (positive or negative) of evapotranspiration (ET) and atmospheric temperature (ATMP) per month at the NLDAS scale in the Coachella Valley, CA; 2006 - 2021.

General Outcomes

In the first 6-months, this project has resulted in two conference presentations, the development of a prototype version of web-based application for WNV infection forecasting in mosquitoes, and a manuscript that has been reviewed and is under revision with GeoHealth.

Deliverables and accomplishments

Year 3:

- Downloaded and processed 925 overpasses (through December 2021) for Coachella Valley, CA
- Downloaded and processed 512 best observations for Coachella Valley, CA during the West Nile virus season
- Processed mosquito trapping and pesticide data
- Presented at ESA-ESRIN, Italy
- Presented at ISEE, Oregon
- Develop 13 km² environmentally informed forecasts and compared to annual WNV infection observations in real time in 2023 for months available
- The forecast model was accurate for 90% of predictions up to 2023
- Manuscript under revision for GeoHealth
- Developed prototype Shiny application

Publications, Submitted Manuscripts, Manuscripts in Preparation, Presentations

- Ward, M.J., *et al.* A spatially resolved and environmentally informed forecast model of West Nile virus in Coachella Valley, California. Under Revision for GeoHealth.
<https://essopenarchive.org/doi/full/10.22541/essoar.168500328.82774308/v1>
- Ward, Matthew J., Meytar Sorek-Hamer, Yuxuan Chen, Jennifer Henke, Aman Patel, Nicholas DeFelice. *Disparities in risk of West Nile virus transmission in Coachella Valley, CA.* Poster Presentation. International Society for Environmental Epidemiology. OSU, Corvallis, Oregon. June 20, 2023.
- Ward, Matthew J., Meytar Sorek-Hamer, Yuxuan Chen, Jennifer Henke, Aman Patel, Nicholas DeFelice. *Disparities in risk of mosquito-borne arbovirus transmission in Coachella Valley, CA.* Poster Presentation. International Workshop on High-Resolution Thermal EO. ESA-ESRIN, Frascati, Italy. May 10 - 12, 2023.
- Ward, M.J., Sorek-Hamer, M., Vemuri, K.K., DeFelice, N.B. (2023). Statistical Tools for West Nile Virus Disease Analysis. In: Bai, F. (eds) West Nile Virus. Methods in Molecular Biology - Springer Nature, vol 2585. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-2760-0_16. November 5, 2022.
- Holcomb, K. M., Mathis, S., Staples, J. E., Fischer, M., Barker, C. M., Beard, C. B., DeFelice, N., ... & Johansson, M. A. 2022. Evaluation of an open forecasting challenge to assess skill of West Nile virus neuroinvasive disease prediction.
- DeFelice, N. B. M. Sorek-Hamer, MJ. Ward, K. Vemuri, J. Henke,. An ECOSTRESS environmentally informed statistical model for West Nile virus infection rates among mosquitoes in the Coachella Valley, CA. ESA. Montreal CA, August 18, 2022.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Developing high-resolution risk maps of West Nile virus in Coachella Valley using ECOSTRESS data.* AMCA Annual meeting. March 5, 2021.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Developing high-resolution risk maps of West Nile virus in Coachella Valley using ECOSTRESS data.* PacVec Annual meeting. February 17, 2021.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Developing high-resolution risk maps of West Nile virus in Coachella Valley using ECOSTRESS data.* MVCAC Annual meeting. February 1, 2021.
- Keyel, Alexander C., Morgan E. Gorris, Ilia Rochlin, Johnny A. Uelmen, Luis F. Chaves, Gabriel L. Hamer, Imelda K. Moise, Marta Shocket, A. Marm Kilpatrick, Nicholas B. DeFelice, Justin K. Davis, Eliza Little, Patrick Irwin, Andrew J. Tyre, Kelly Helm Smith, Chris L. Fredregill, Oliver Elison Timm, Karen M. Holcomb, Michael C. Wimberly, Matthew J. Ward, and Rebecca L. Smith. *A qualitative evaluation of West Nile virus models and their application to local public health decision-making.* Accepted, PNTD. August 2021.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Using space based high resolution remote sensing data to forecast WNV in Coachella Valley, CA.* PacVec Fall seminar series. November 9, 2021.
- DeFelice N.B., 2021 Forecasting West Nile Virus AMCA Annual meeting. March 3, 2021.
- DeFelice, N; Sorek-Hamer, M; Ward, M; Vemuri, K; Henke, J; Campbell, S; Romano, C; Santoriello M. An environmentally informed statistical model and forecast system for West Nile virus infection rates among mosquitoes in the Coachella Valley, CA. AGU Fall Meeting 12/15/2021.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Developing high-resolution risk maps of West Nile virus in Coachella Valley using ECOSTRESS data.* Proceedings and Papers of the Mosquito and Vector Control Association of California, 89(1):000–000.

Prospects

We are in the final phase of running models to developing an environmentally forced forecasts system for WNV that maximizes our understanding how meteorological conditions are most appropriate for WNV amplification in Coachella Valley. Over the next year (Table 1) we will finalize our probabilistic models using environmental indicators, specifically shifting to incorporate ECOSTRESS data at the hyper-fine spatial scale of 70m; then, we will generate environmentally informed spatial risk maps forecasting early in the WNV season our understanding of the temporal role climatic and hydrological parameters influence disease transmission at a micro-climate scale. Additionally, we will continue development of a web-based tool allowing for real time visualization of risk driven by our ensemble model system.

Table 1. Project timeline

	Year 1			
	Q1	Q2	Q3	Q4
Task #1				
Develop Model-EAKF system for extreme temperature	[Redacted]			
Task #2				
Develop downscaled weights for NLDAS grid and Model-EAKF	[Redacted]			
Feasibility study	[Redacted]			
Feasibility study complete				
Task #3				
Forecast at fine spatial scale				[Redacted]
Verify decision support system				[Redacted]
Verify decision support system complete				
Implement in real time				
Integrate into Shiny Application				

June 30, 2023
Progress Report
Lark Coffey
University of California, Davis

This report summarizes progress on both our 2020 CVMVCD project *Evaluating mosquito excreta as an early warning system for arbovirus surveillance in remote locations* for which we received a no cost extension, and our 2022 project *Evaluating metagenomic arbovirus detection using nanopore sequencing: a field-forward sequencing approach*. The major objectives of both projects are listed at the bottom of the document.

Our progress has been delayed due to departure of Dr. Ana Ramirez, our post-doctoral fellow leading both projects. Dr. Ramirez left UC Davis for a job as a science writer at Jackson Laboratories, which provides small animal models for biomedical research.

In response to Dr. Ramirez's departure, we have recruited and hired a new team member, Rochelle Leung, BS. Ms. Leung was trained by Dr. Ramirez prior to her departure and has been working with us part time since January 2023. Ms. Leung will join our group full time starting July 3, 2023 and all of her effort will be focused on successful completion of these projects.

With these staffing changes, most of our activities have been dedicated to training Ms. Leung towards technical competence needed for both projects. These include:

- Validation and preparation of multiplex qRT-PCR reagents
- Development of qRT-PCR standards using historical and contemporary virus strains, mostly for St. Louis encephalitis virus
- Extraction of arboviral RNA from mosquito excreta and FTA cards
- Development of competence in qRT-PCR and library preparation from arbovirus-infected mosquito samples for metagenomic sequencing
- Use of hand-held nanopore sequencers for viral metagenomics

We also met with Jennifer Henke by zoom in March 2023 to set the 2023 surveillance plan using traps and excreta collections established in the 2020 project. As soon as Ms. Leung has attained technical competence, we will test all FTA cards sent to UC Davis by CVMVCD.

2020 Project

The main objective of this project is to evaluate and optimize a system to collect mosquito saliva and excreta for the detection of arboviruses that can act as an early warning to enhance arbovirus surveillance in remote or underserved areas in the Coachella Valley.

2022 Project

The main objective of this project is to evaluate and optimize a system for unbiased metagenomic arbovirus detection using hand-held low-cost nanopore sequencers from samples collected for arbovirus surveillance using mosquito pool excreta in locations around the Salton Sea in the Coachella Valley.

Progress Report (June 2023): Attractive Toxic Sugar Bait (ATSB) to Control House Flies near Crop Fields

Alec Gerry¹, Caleb Hubbard¹, Kim Hung²

¹Department of Entomology, University of California, Riverside CA 92521

²Coachella Valley Mosquito and Vector Control District, Indio, CA 92201

Specific Aims

Develop attractive toxic bait stations (ATSB) for targeted control of house flies associated with agricultural crop fields. Use of ATSBs can reduce dispersal of flies from field crops or other fly-producing sites to neighboring properties including residential areas, schools, hospitals, or other sensitive sites.

Background and Significance

Animal agricultural facilities control house flies through cultural practices (e.g. manure removal) and/or through the application of insecticides as sprays, fogs, or toxic baits. However, these practices are not applicable for control of flies associated with human food crop fields. Instead, methods are needed to selectively target house flies while limiting exposure of crops and field workers to insecticides. In recent years, there has been increased interest in the use of attractive toxic sugar baits (ATSB) for controlling flies of medical importance (e.g. Schlein and Muller 2010) including eye gnats (Jiang and Mulla 2006). ATSB employs a strong attractant (often a fermenting fruit juice) coupled with a sugar-based food source containing a toxicant material to kill insects feeding on this food source. A nice review of ATSB formulations, including toxicants, tested for control of mosquitoes and other important Diptera is provided by Fiorenzano (2017).

Attractive Toxic Sugar Bait (ATSB) stations rely on use of volatile compounds (attractive odors) to draw pest flies to a food source containing sugar (bait) and an insecticide (or toxicant) to kill flies feeding on the bait. ATSB methods have been explored primarily for control of blood-feeding insects such as mosquitoes and sandflies but may be applicable for control of a range of pest insects, including the house fly (*Musca domestica*). Sugar baits containing an insecticide have been commercially available and used to manage flies for over 40 years. These “fly baits” are typically dry granular formulations comprised of sucrose, an insecticide, and often a putative fly sex pheromone.

Following many years of using fly baits, it is evident that these dry granular baits are not particularly attractive to house flies. Flies do not appear make directed movements toward fly baits even over short distances of a few feet. Rather, flies appear to simply encounter the bait as they move about foraging for food. Once encountered, the bait is usually fed upon by flies due to the presence of sucrose with fly death due to ingestion of the insecticide also formulated into the fly bait. Fly bait efficacy could therefore be improved by 1) increasing the distance of volatile

attraction [the distance over which flies will detect and move toward the fly bait], and 2) increasing the feeding rate.

Previous Work:

During the first year of the project, various sugar-based fermentation products were tested for house fly attraction in laboratory assays. These studies were reported in the 2022 Project Report. Attractants tested were fruit juice (mango, guava, or peach) or blackstrap molasses heated until warm (37- 44°C) with brown sugar (10% w/v; C&H Brown Cane Sugar) and Active Dry Yeast (0.4% w/v; Fleischmann's) with the combined solution fermented for 96 hours. Using an experimental assay arena (Figure 1), the fermented guava juice was shown to be the most attractive of the tested products (Figure 2) as detailed in the 2022 Final Report for this project.

Based on these results, fermented guava juice was selected for use in 2023 ATSB field trials to control flies in a commercial pepper field in the Coachella Valley.

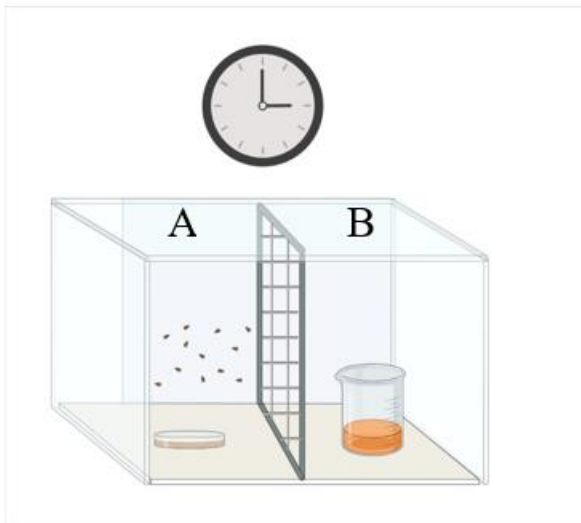


Figure 1: An experimental cage fitted with a screen partition dividing the cage in two was utilized to examine the attractiveness of each fruit juice solution. Flies were placed into Side A of the cage, and the test liquid was placed into Side B. The number of flies on Side B at each time point was used as a proxy for the attractiveness of each solution.

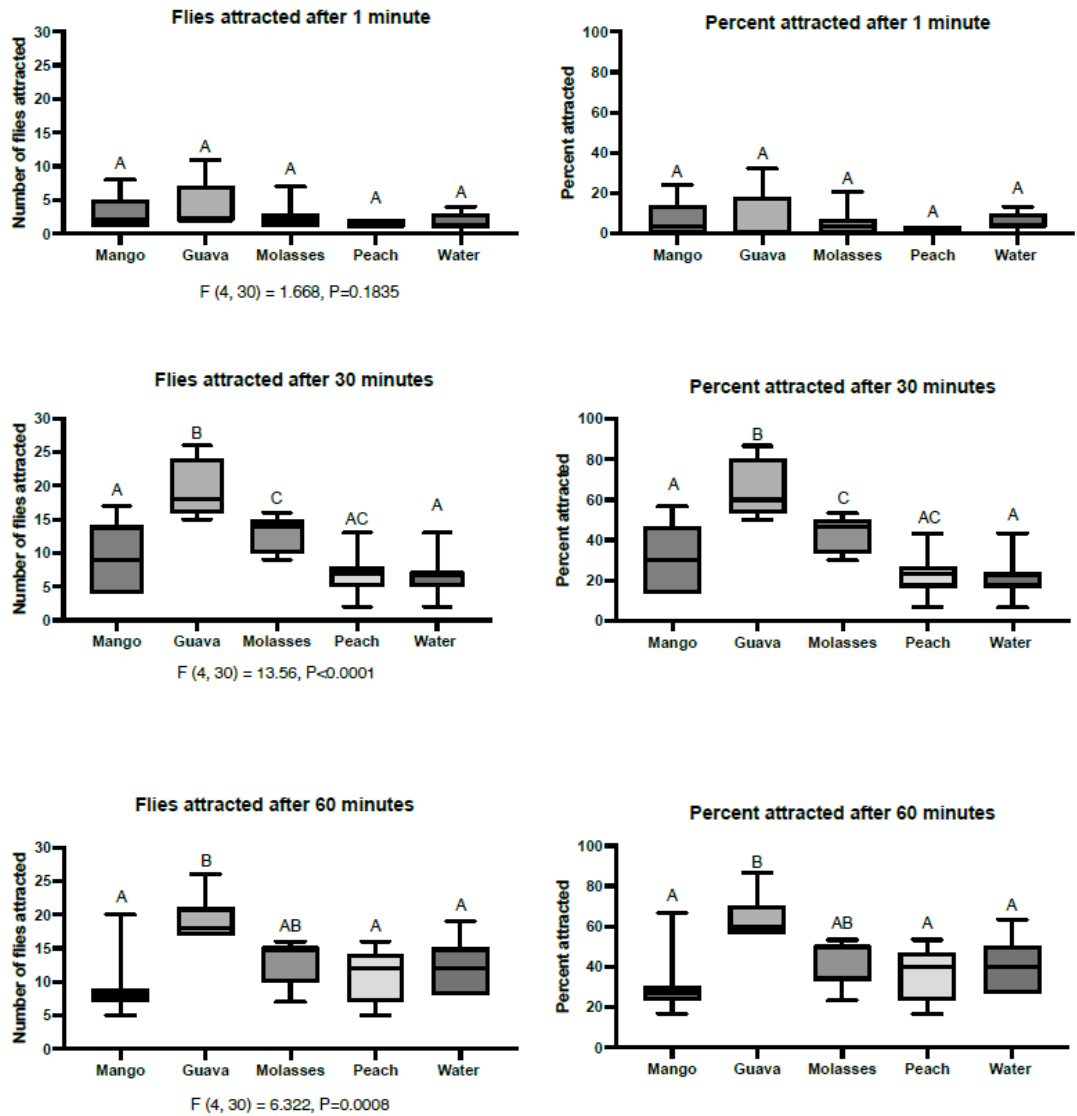


Figure 2. Number (or percent) of house flies on Side B of the test cage by time post-release (1, 30, 60 min) according to tested material fermented fruit juice (mango, guava, peach), molasses, or water control.

Current Work:

During the 2023 year, following Consultation with District Staff and the management of the commercial pepper production company, the study site was moved to a new pepper field location at the intersection of Cleveland and Hwy 111 in Coachella Valley. This location is just north of the Salton Sea State Park and is a mixed-use agricultural area with fields planted primarily with peppers or corn. Peppers were planted in mid-April and are anticipated to be harvested through mid-July.

Field Test - Fermented Attractant

Laboratory studies had confirmed that fermented guava juice was attractive to flies. However, this attraction needed to be confirmed under natural field conditions near pepper fields where other odors associated with pepper production and pepper waste were present.

To test the attraction of fermented guava juice in the field, we placed 5 G orange bucket traps (Home Depot) along the north and south edge of one of the pepper fields just south of Hwy 111. Bucket traps contained commercial fly bait (Quikstrike; a.i. dinotefuran) applied at label rate and traps were placed in 17 trap pairs (34 total traps) along the field edge with each trap pair separated by 5 m distance from the neighboring trap pair. In each trap pair, one trap contained only the commercial fly bait (No Attractant) while the other trap contained commercial fly bait and fermented guava juice attractant held within a plastic 16 oz (473 ml) deli food container (Attractant) (Figure 3). Trapping was conducted over 24-hour periods on two consecutive days each week over a 3-week period from June 8-23, 2023. Over all trap days, there is a total of 102 replicate traps for each treatment (Control or Attractant).



Figure 3. Paired 5 G bucket traps containing commercial fly bait (Quikstrike) with or without fermented guava juice attractant. Flies attracted to either the commercial fly bait or the commercial fly bait PLUS attractant were killed by feeding on the commercial fly bait in either trap bucket. Buckets were held in place using a rebar pole with eyelet screws in each bucket to hold the bucket to the rebar.

Trapping Schedule

Wednesday: new fly bait was added to each bucket trap and new fermented guava juice was added to bucket traps labeled for attractant.

Thursday: flies and other captured insects killed in the trap were removed using forceps and placed into labeled containers, leaving the fly bait and attractant within each labeled bucket trap.

Friday: flies and other captured insects killed in the trap along with all remaining fly bait were removed and placed into labeled containers.

As of the writing of this report, fly counts were completed for 5 of the 6 trapping dates. Flies captured on the final trapping date (23 June 2023) have yet to be identified and counted. Thus, data analysis will be updated for the end of year report when all data can be included. When combining all replicates for each treatment, traps containing the fermented guava juice attractant (labeled “bait” in the figure below) captured significantly more flies than did traps without the attractant (N=85; Z=-8.0077; P<0.0001). The mean capture in traps containing attractant was 83.22 flies per bucket while the mean capture in traps without attractant was 16.71 flies per bucket (Figure 4).

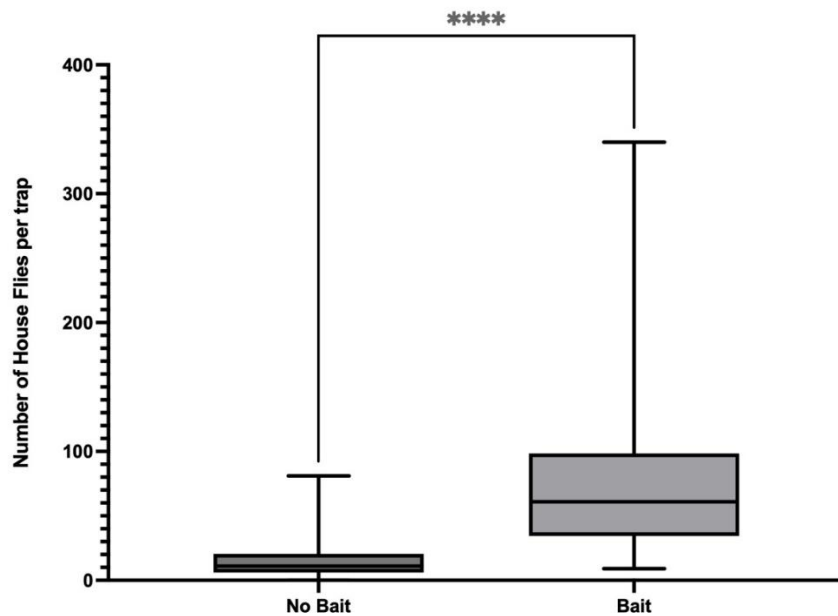


Figure 4. Mean number of flies captured per bucket trap. “No bait” are bucket traps without attractant while “Bait” indicates bucket traps containing attractant. **** indicates a highly significant difference at P<0.0001)

Further analysis was performed using a mixed-effects model in SAS with treatment (no attractant vs attractant) day (Day 1 vs Day 2 of each week), location of trap relative to the pepper field (Northside vs. Southside), and interactions among these effects (Table 1). This analysis showed a significant effect of treatment with traps containing attractant outperforming traps without the attractant (P< 0001). Although there was also a significant effect of trapping day (P< 0.0001) this may be an artifact of not having counted and analyzed the Day 2 fly capture from the last

trapping week. There were no other significant effects and no interactions ($P > 0.05$). Full analysis is shown in the table below:

Table 1: Mixed-effects model of fly trap counts including the following factors: Date of trapping each week (Day 1 vs Day 2), Treatment (No Attractant vs Attractant), Location of trap (Northside vs. Southside).

Fixed effects	P value	P value summary	Statistically significant ($P < 0.05$)?	F (DFn, DFd)
Date	<0.0001	****	Yes	F (4, 75) = 8.691
Treatment	<0.0001	****	Yes	F (1, 75) = 72.63
Location	0.7635	ns	No	F (1, 75) = 0.09121
Date x Treatment	0.0924	ns	No	F (4, 75) = 2.076
Date x Location	0.2433	ns	No	F (4, 75) = 1.397
Treatment x Location	0.5269	ns	No	F (1, 75) = 0.4041
Date x Treatment x Location	0.2532	ns	No	F (4, 75) = 1.368

When data is examined by trap date and treatment the mean number of flies captured by bucket traps containing attractant was substantially greater than the mean number of flies captured by bucket traps without attractant on all trapping dates (Figures 5, 6). While there appeared to be a greater number of flies captured in bucket trap positioned on the northside of the pepper field during week 1, this difference was lost in later trap weeks.

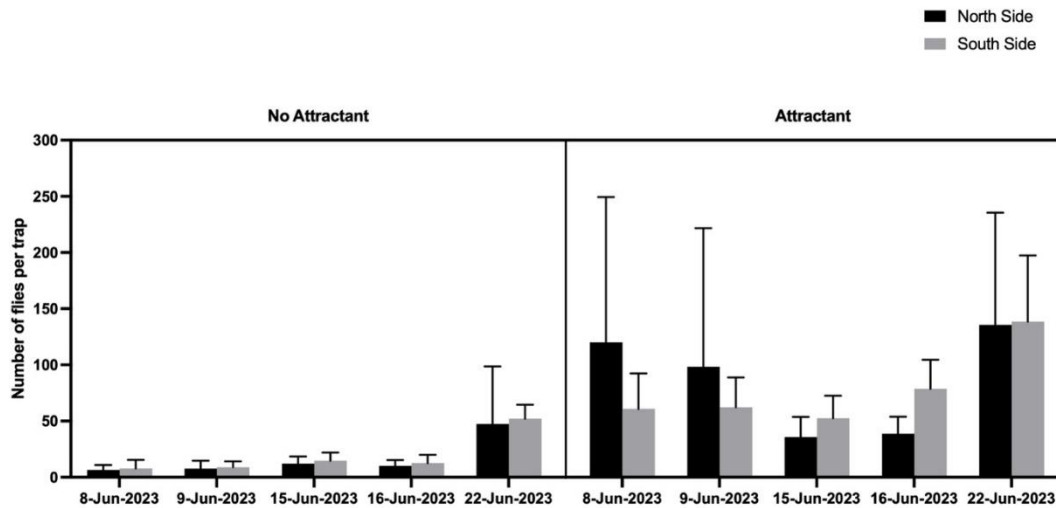


Figure 5. Mean number of flies captured in bucket traps containing commercial fly bait only (No Attractant) or commercial fly bait plus fermented guava juice (Attractant) on each trap date. Data are separated by trap location relative to the pepper field (black columns = traps on northside of field; grey columns = traps on southside of field).

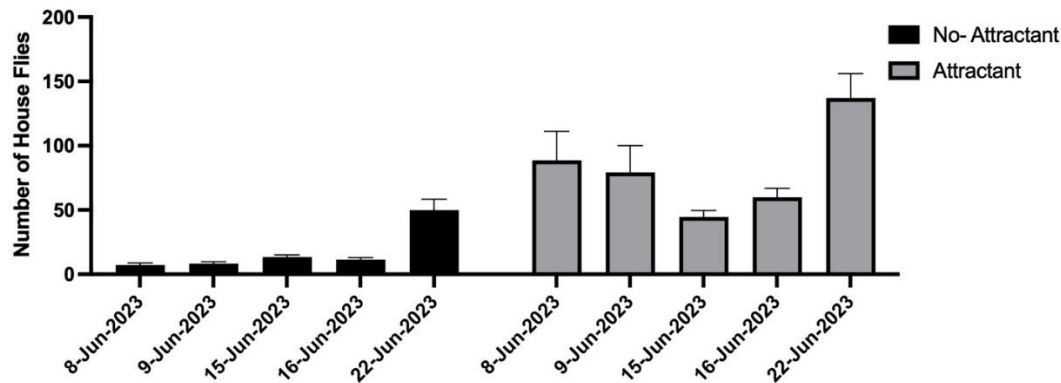


Figure 6. Mean number of flies captured in bucket traps containing commercial fly bait only (No Attractant) or commercial fly bait plus fermented guava juice (Attractant) on each trap date. Data is combined for both trap locations since there was no effect of trap location on fly capture.

Field Test – Reducing Fly Dispersal

It was intended that bucket traps containing commercial fly bait and fermented guava juice (ATSB traps) would be utilized to evaluate their use in reducing flight movement (dispersal) by flies from pepper fields to surrounding areas. However, we had some difficulty identifying a suitable location for these tests. Our initial test location was an abandoned vineyard that lacked grapevines but still had metal vine supports, and which is to the immediate east and north of the pepper fields. This field appeared to have been unutilized for some time and we believed it would be out of the way of grower operations at the pepper field site. Unfortunately, the week we were to initiate tests using ATSB to reduce fly dispersal, the landowners of the abandoned vineyard began deconstruction of the vine supports and subsequently tilled the ground (along with two of our traps). The following week, we identified an alternate test site to the south of the pepper fields and separated from the pepper fields by a recently mowed cornfield.

The first field test to limit fly dispersal just completed (June 28-30, 2023). At the new test site, two 22 m diameter circles were measured with 13 trap positions placed along the circumference of each circle at 5 m intervals. At the center of each trap circle, three sticky fly traps were placed 1m from the center of the circle with each sticky trap equidistant from the others (Figure 7). The use of three sticky traps is to increase the surface area of sticky trap material and thus the total number of flies captured within each trap circle. Fly counts will be combined for all three sticky traps to give a single trap count for each trap circle. During each trapping period, ATSB traps will be placed at the 13 trap positions along the circumference of one trap circle (Treatment) while the other trap circle would have no ATSB traps (Control). Treatment and control trap circles will be switched on subsequent trapping periods.



Figure 7. Control (left side) and Treatment (right side) trap circles (22 m diameter) with 3 sticky traps placed in the center of each trap circle and with 13 ATSB traps placed at 5 m intervals along the circumference of the Treatment trap circle. To reach the sticky traps in the Treatment trap circle, flies would have to pass the ATSB trap line while flies could reach the sticky traps in the Control trap circle without passing an ATSB trap line.

During the first trapping period, no flies were captured on the sticky traps in either trap circle (Treatment or Control). Fly activity around the pepper fields has been relatively low across the entire season this year and fly activity is anticipated to decrease substantially as higher temperatures begin in July. While low fly activity was sufficient to complete the fermented attractant tests described in the first part of this report, it was insufficient for dispersal studies particularly as the only site available for these studies (pictured in Figure 7) was not immediately adjacent to the pepper fields as originally planned. There were unfortunately, simply no other sites near the pepper fields that were available for these studies and would not disrupt ongoing commercial agricultural activities.

After discussion with the District Vector Ecologist (Dr. Kim Hung) it was determined that we would temporarily cease the dispersal studies as we look for another study location. We anticipate repeating the dispersal studies in fall of 2023 when fly numbers begin to increase again and at a different location where fly activity during fall is expected to be high.

Mid-Season Progress Report, June 2023: Attractive Toxic Bait Station for Mosquito Control in Underground Storm Drain Systems of the Coachella Valley

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Objectives:

The goals of this project are to investigate the efficacy of attractive toxic sugar bait (ATSB) stations to transmit and promote mosquito-propagated (autodissemination) transmission of chemical and biological control agents against mosquitoes inhabiting underground storm drain systems (USDS). We proposed (i) to develop an ATSB design that effectively attracts adult *Culex quinquefasciatus* mosquitoes and exposes them to control agents via ingestion and/or contact under laboratory conditions, (ii) to assess lethal and sublethal effects on mosquito life stages in laboratory exposure assays with an ATSB-based entomopathogenic fungus, biocidal/reproductive sterilizing agent, or insect growth regulator (IGR), and (iii) to determine the efficacy of multiple ATSB-based control agents against mosquito adults and immature stages at developmental sites under laboratory and field conditions.

Previous USDS Field Trial: Autumn 2022

The autumn 2022 trial tested a novel hanging ATSB design for mosquito abatement at the same USDS sites where we previously tested the floating ATSB within two HOA properties in Palm Desert, CA in spring 2022. A total of six hanging ATSB, one per chamber, were concentrated at one HOA (treatment area) and compared to six additional chambers without ATSB at the second HOA (control area). A single CDC-UV trap (no CO₂) deployed overnight in each of the 12 chambers assessed adult mosquito production and coloration from bait dye ingestion. CDC-UV traps were deployed every week within treatment and control areas before, during, and after ATSB deployment over a one-month period. The presence or absence of hanging ATSB were not significantly linked to mosquito abundance over time and space and bait-colored adults were nearly absent within CDC trap catches. Adults trapped within each ATSB were not uncommon, but typically small in number compared to those found in CDC traps. The hanging ATSB proved to be more operational-ready than the previous floating ATSB design, given it was easier to build, transport, deploy, monitor, and recharge within USDS. In general, mosquito numbers declined as air temperatures declined and this correlation was evident during a seasonal cooling trend and at specific USDS with lower-than-average air temperatures inside. Monitoring surface and subsurface air temperatures may therefore help direct the timing and location of adulticide treatments for optimal mosquito abatement efficacy within USDS.

A full report on the autumn 2022 field trial can be reviewed with the Annual Report and Research Proposal: Year 1 from 2022.

USDS Field Trial: Spring 2023

Methods

ATSB Deployment and Design

A total of twelve individual USDS chambers, half within each of two Homeowner Association locations within Palm Desert, were used in three experimental groups during the spring 2023 trial (Figure 1). Six chambers hosted ATSB (treatment), two contained non-toxic stations with attractive sugar bait (ASB = positive control), and four lacked bait stations (negative control). To address whether the cardinal direction of each chamber influenced mosquito outcomes, half of USDS selected for each treatment opened parallel to the north side and half parallel to the south side of its adjacent street. Mosquitoes were collected from all chambers once per week between April 27 and June 1, beginning one week before bait deployment (pre-treatment). The middle three sample dates documented the three weeks after bait stations were first deployed, starting the day after stations were mounted in USDS. The last sample date occurred one week after bait feeding sheets were removed and reservoirs closed (deactivated stations were left mounted in USDS).

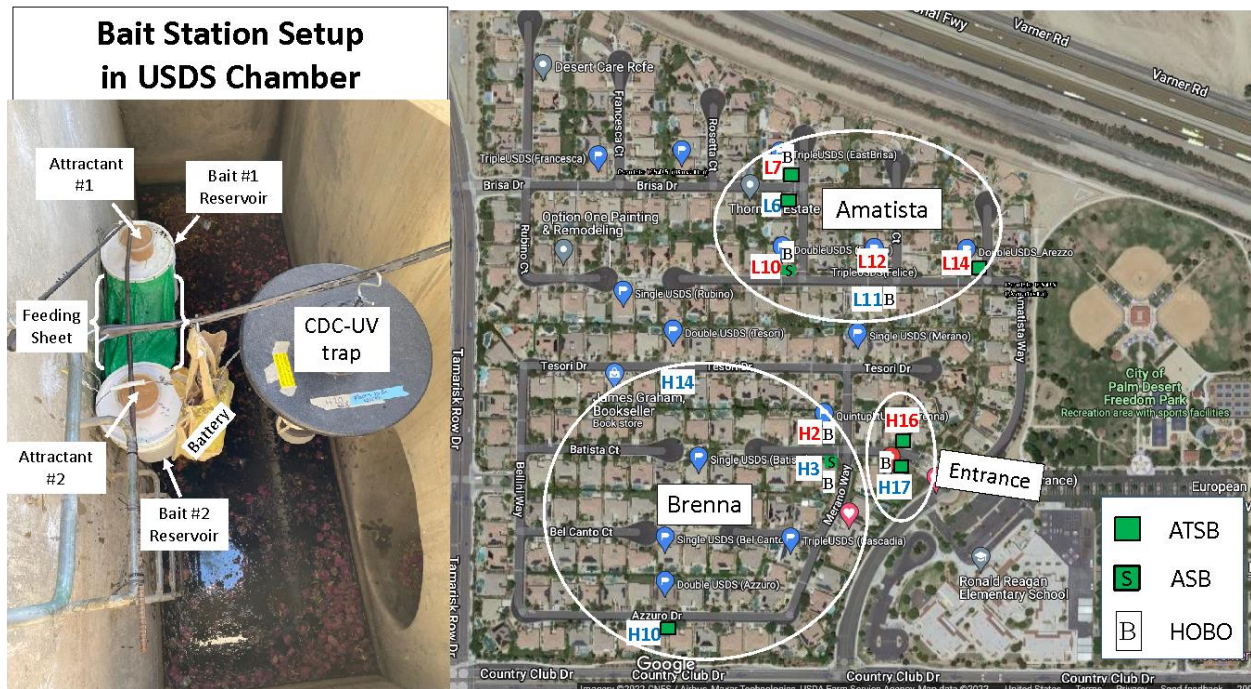


Figure 1. USDS-ATSB trial at two adjacent HOA sites in Palm Desert, CA during spring 2023. Each letter/number combination represents an individual chamber sampled weekly for mosquito abundance, with color indicating if the chamber's street opening faced north (blue) or south (red). The indicated symbols pinpoint locations of bait treatments (toxic = ATSB, non-toxic = ASB) and HOBO sensors measuring temperature and humidity within USDS.

The USDS bait station (Figure 1) consisted of a bait-soaked sheet stretched near-parallel to the chamber floor between two circular 2-gal plastic buckets hanging from rebar attached to the access ladder of each chamber. This design was based on a smaller laboratory model that demonstrated greater adult mosquito feeding and mortality when a bait reservoir was present compared to other methods tested (Figure 2). The rebar was secured with metal wire parallel to the floor towards the longitudinal middle of each chamber at an average height of 1 meter from water surfaces and was threaded through the handles of two empty buckets separated by a 1-meter distance. A perforated rubber strap was attached to a wire loop on the end of the rebar and on a second ladder rung above to provide additional support and prevent bait reservoirs from sliding off the rebar. The bait-saturated sheet was a 1.25 m x 20 in double-sided absorbent liner (polypropylene and cellulose, model number AL20300, Jaece Industries, Inc., NY, USA) orientated with its hydrophobic layer upward and absorbent (hydrophilic) layer downward relative to gravity. This orientation appeared to enhance moisture retention and extend the viability of bait-saturated feeding surfaces compared to its opposite (hydrophobic down, absorbent up) in laboratory tests.

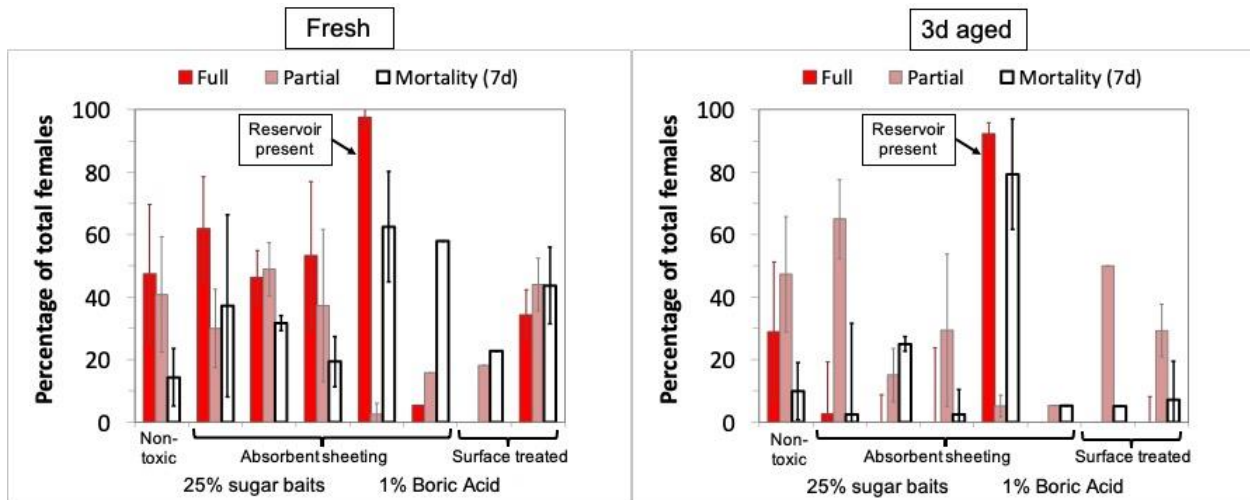


Figure 2. Comparison of bait deployment treatments against sugar-starved, nulliparous *Culex quinquefasciatus* females ($n = 20$) exposed for 24 h in laboratory cages. Bait was applied on vertical surfaces or saturated in absorbent sheeting. A single reservoir treatment (arrow) consisted of absorbent sheeting stretched between two bait-filled vials. Bait dye was evident in adults either partially (Partial) or fully (Full) engorged with a sugar meal. Adults were transferred from cages to plastic vials, provided a 10% sugar solution, and monitored daily for mortality over a 7-day period. Fresh bait treatments (left) were aged in the laboratory and exposed to a new cohort of adult mosquitoes after 3 days (right).

Each bait reservoir bucket was filled with 6 L of freshly prepared bait and a dry sheet was immersed in one reservoir before it was stretched between both reservoir buckets suspended from the rebar within the USDS. The bait-treated sheet was held within the reservoir bucket by adding covers loosely placed over each bucket. A closed reservoir also protected against contamination and evaporative loss and the loose cover placement reduced drying of the bait sheet, especially at its center, when compared to tight covers tested in the lab. On top of each

closed bait reservoir cover a plastic container with fermented solution was placed to enhance mosquito attraction to the bait station.

Bait stations were inspected weekly, and inspections involved assessment of remaining bait level, debris, moisture, mold, and dead mosquito abundance/color. Dead mosquitoes were removed after on-site identification or collected into 70% ethanol for a later evaluation by microscope. Bait reservoirs were replenished to their original volumes, when possible, and freshly prepared solutions were mixed into aged solutions, unless bait contamination (e.g., mold) was extensive and enough bait volume was available to replace the entire 6-liter volume. Each week-old feeding sheet was replaced with a new sheet immersed and stretched over reservoirs as previously described. Week-old fermented attractive solutions were dumped and replaced with newly prepared solutions. Station inspections and recharge were performed immediately before CDC-UV traps were deployed overnight.

Attractive toxic bait consisted of boric acid (1% w/v), table sugar (20% w/v), and green dye (1% v/v) in water. Non-toxic bait was the same composition, but without boric acid. The fermented attractant was placed on top of each bait reservoir in a 500 mL plastic container covered by a mesh top to allow volatile escape. The fermented attractant consisted of brown sugar (10% w/v) and brewer's yeast (0.4% w/v) mixed with guava nectar (Jumex → Guava Nectar, 25% juice) that had been fermented in an 8L carboy at 37°C for 3 days before deployment. The attractant was not directly added to bait because laboratory evidence suggested it may deter mosquito feeding on the bait compared to bait without attractant (see Discussion); however, the guava-based attractant was included nonetheless because fly attraction to fermented guava juice had been demonstrated previously in Gerry lab experiments and fermentation volatiles are widely considered important to mosquitoes to find sugar sources in nature.

Environmental Conditions within USDS

Six HOBO sensor units (Onset Computer Corp., Bourne, MA) continuously measured temperature and humidity every hour inside six USDS chambers for the study duration (April 27 – June 1). Half of the HOBO units were located in each HOA inside either north-facing or south-facing USDS (Fig. 1). Each HOBO was hung at the horizontal center of vertical walls on the same side as the manhole access cover, approximately one meter below the chamber ceiling. Sensors were placed at dry spots without evidence of past water flows to minimize direct contact with street run-off. USDS measurements were compared to those of an aboveground weather station in relative proximity to all sites (CIMIS: La Quinta II, www.cimis.water.ca.gov, accessed June 16, 2023).

Once-weekly water reservoir surveys included water depths recorded with a meter stick and observations of the predominate debris type (open, floating vs. underwater vegetation, sediment accumulation), debris amount (none = 1 to 5), and live mosquito activity (none = 1 to 5).

The analysis of environmental variables is ongoing at the time of submission for this mid-year report and thus only the general values for USDS measurements are included in results.

Adult Mosquito Monitoring

Adult mosquito abundance and bait feeding rates were assessed weekly using a CDC-style suction trap with an UV light and 6V lead acid battery contained in a wine bag. This trap will capture both female and male mosquitoes. Each trap and battery bag were hooked on the perforated rubber strap stretched across the width of each USDS above bait stations (Figure 1). The trap was positioned at the middle of the USDS widthwise, and the bottom of the collection containers was average 1 m in vertical distance from the water surface of each USDS. A trap was deployed in each USDS chamber ~ 18 hours overnight and containers with captured adult mosquitoes transported to the lab on ice. Specimens were frozen and identified by dissection microscope to species, sex, female reproductive state, and for the presence and amount (partial vs. full) of green dye in the mosquito abdomen indicating feeding on bait stations (Figure 3).



Figure 3. Examples of bait coloring in *Culex quinquefasciatus* adults collected from USDS. The arrow indicates a non-gravid adult with a fully distended green abdomen indicating a recent, large meal on the attractive sugar bait.

Sweep nets were also used to collect resting adults inside each USDS and samples were taken every week before (afternoon) and after (next morning) the overnight period of CDC trap operation, starting the first day bait stations were deployed (Figure 4B). Sweep net samples were not taken the week before bait station deployment because vacuum and aspiration techniques were being tested during this time before sweep nets were selected as the superior choice for capture of resting mosquitoes within the USDS. To limit mosquito escape before and during each sample, the slit-like street opening of each USDS was temporarily blocked with white mosquito mesh. The mesh was draped over and stretched across each opening (height ~25 cm, length ~ 2.3 – 5 meters), weighed down with rebar on the sidewalk above, and secured at each end with a hand-clamp and bean-weighted sock. An insect collecting net with a modified, shortened handle and a meter stick to rouse mosquitoes from resting sites were used in concert inside each chamber. Sampling began with meter-stick taps inside an underground pipe opposite to each ladder that travelled underneath the adjacent street and connected neighboring USDS chamber(s) and mosquitoes roused from the pipe were collected with back-and-forth sweeps of the net. The tap-and-sweep procedure was performed on bait station surfaces (when present), chamber walls, and water surfaces with floating vegetation/debris. The net was kept as dry as possible during sweeps since wet specimens tended to stick together and were much harder to identify under the

microscope than groups of dry specimens. Adult mosquitoes often travelled to the closed street opening above and a top-side assistant tapped the length of the mesh to herd adults back down into the path of net sweeps. The topside assistant also captured mosquitoes that tried to escape through the open manhole with a sweep net; however, relatively few mosquitoes appeared to escape the USDS through this opening, except when chambers were particularly shallow (e.g., < 2 m). Each chamber was swept back-and-forth at least once, after which sampling was terminated when flying mosquitoes were no longer detected after a brief pause. Additional sampling was performed when mosquito activity persisted after the first back-and-forth trip and USDS with higher mosquito numbers typically required several sweep-transects before termination. Below- and above-ground sweep nets were placed on dry ice for at least 5 minutes to immobilize capture adults and combined into a single plastic vial with a funnel and paint brush. Samples were frozen and processed by microscope in the same manner as outlined above for CDC traps. The same setup was used to block all openings and mesh was shaken out between sites to avoid transferring mosquitoes among USDS sites.

Appropriate statistical methods in Systat (SPSS, 1998) were used to analyze patterns of adult abundance in CDC traps and sweep nets in relation to discrete and quantitative experimental variables in the field trial. Discrete variables included the date and timing of samples (relative to deployment of bait stations and CDC traps), HOA site, bait station treatment, presence of HOB probe, and direction of USDS opening. Quantitative variables included hourly sensor measurements such as temperature and relative humidity recorded below- (HOB) and aboveground (weather station). Weekly surveys of USDS included a mix of quantitative (e.g. water depth) and discrete (e.g. debris type) data analysis.

At the time of this writing, sections of the statistical analysis have yet to be completed and therefore the results presented include basic descriptive statistics with means and deviances reported for data trends. Future reports will integrate descriptive and advanced statistics into a complete picture of outcomes from the spring 2023 trial for comparison with past and future ATSB trials in later publications.

Results:

Adult Mosquitoes in CDC-UV Traps

Culex quinquefasciatus comprised more than 99% of the 12,656 mosquitoes collected and an average CDC trap contained 178 adults after the overnight run time (Figure 4A). *Culex tarsalis* was commonly found in traps in low abundance (N = 99) and a single *Aedes aegypti* female was collected on the last sample date. Females were twice as abundant as males and non-gravid specimens represented 79% of all females. The remaining females were gravid (16%), bloodfed (2%), or lacked an abdomen (3%).

The toxic bait treatment averaged 3-fold greater total mosquito abundance than both the non-toxic bait and no-bait treatments. The gap between toxic and non-toxic treatments existed before, during, and after deployment of bait stations and the rise and fall of mosquito numbers of each treatment mirrored each other over time. Mosquito abundance for both bait treatments peaked twice during sampling, at week 1 and 4, with each peak followed by a 3-6-fold decline in

numbers over the next two weeks. In contrast, the no-bait treatment maintained relatively constant numbers over time, regardless of bait stations in neighboring USDS and seasonal variability.

Green bait color was evident in nearly 9% of the total mosquito specimens collected from CDC traps. Bait-positive specimens (N = 1,086) were comprised of 78% females and 22% males, and about three-quarters of positives were estimated to be partially-fed and one-quarter fully-fed on bait dye. Of bait-positive female, 79% were non-gravid and unfed, 18% were gravid, and 0.4% were blood fed (2% lacked abdomens but contained thoracic/head dye).

Bait-positive rates were strongly linked to bait treatment and an order-of-magnitude higher in USDS with bait stations (mean = 11%) compared to USDS without bait stations (mean = 0.9%). Overall, more bait fed mosquitoes were recovered in USDS with the non-toxic ASB treatment (12.5%) than in the toxic ATSB treatment (9%), and this gap, although small, was consistent throughout the bait deployment period. Compared to one day after bait deployment, proportions of bait-positive mosquitoes were nearly 3-fold higher in subsequent weeks and averaged nearly 20% for three weeks straight. The week after bait station reservoirs were closed, bait-positive mosquitoes comprised less than 5% of total trap counts. Bait was absent from all mosquitoes collected the week before bait stations were first put into USDS.

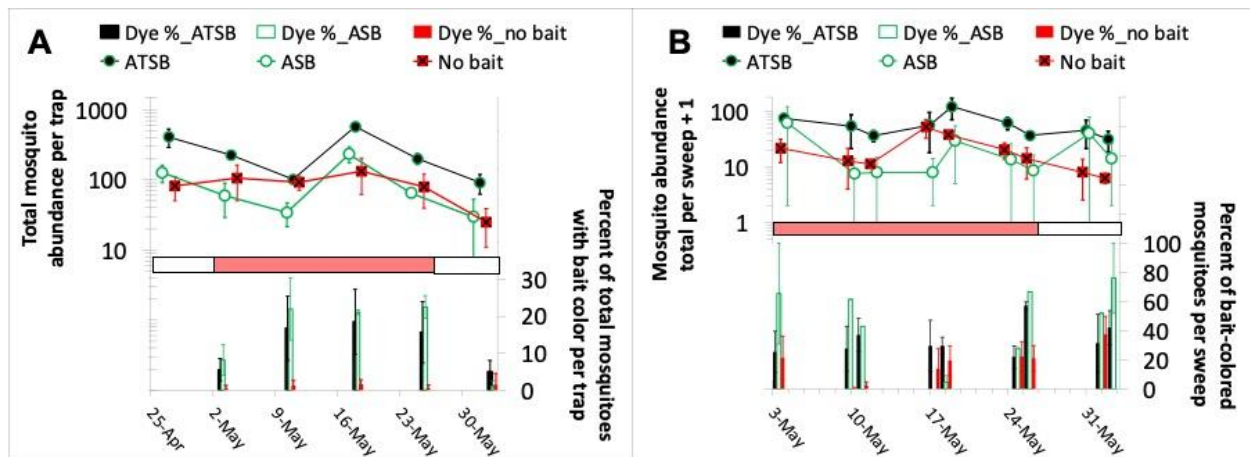


Figure 4. Bait treatment trends (Mean \pm SE) within (A) CDC traps and (B) net sweeps during spring 2023 in Palm Desert USDS. The upper line graphs (y-axis on left) indicate total mosquito abundance on log10 scale. The bottom bar graphs (y-axis on right) denote percent of bait-colored specimens. Shaded horizontal bars between the upper and lower graphs indicate the station deployment period with bait present (red) or absent (white).

Adult Mosquitoes in Net Sweeps

Culex quinquefasciatus was essentially the only species found in the 4,017 mosquitoes collected and averaged 39 adults per sweep sample. The sex ratio was nearly even, with 53% females and 47% males, and most females were either gravid (51% of total females) or empty (44%). The remaining females were either bloodfed (4%) or without abdomens (1%). A single female *Culex tarsalis* was the only other mosquito species found.

Inside toxic bait USDS, 3-fold more mosquitoes, on average, were collected by sweep nets compared to non-toxic bait and no-bait treatments, and this gap in total abundance was greatest 1-3 weeks after deployment (Figure 4B).

Nearly one-quarter of all mosquitoes captured by sweep nets were bait-colored, 62% of which were female and 38% male. Mean bait-positive rates among treatments were 44%, 34%, and 16% in non-toxic, toxic, and no-bait USDS, respectively. Near-average proportions of bait-positives could be found on all deployment dates, even after closure, in most USDS as bait stations aged. Notable exceptions to this trend included mean bait-positive frequencies lower than 5% in the no-bait treatment on Week 1 and the non-toxic treatment on Week 2. Mean bait-positives rates greater than 55% were recorded once in the toxic treatment (Day 20) and four times in the non-toxic treatment (Days 1, 6, 21 and post-closure Day 7). The overall frequency of each bait meal type when sexes were combined was on average 62% partial and 38% full. Among treatments, the frequency of fully bait-fed mosquitoes was 51%, 44%, and 24% for non-toxic, toxic, and no-bait groups, respectively.

Adult Mosquitoes within ATSB Stations

A single male *Culex quinquefasciatus* was the only dead mosquito found on the surfaces of each bait station during the study. Live mosquitoes were often found leaving bait stations during net sweeps and many appeared to have a greenish tint and/or sluggish flight activity to suggest significant bait feeding was commonplace.

Environmental Conditions

HOBO probes within USDS indicated air temperature averaged 27 °C with a mean range from 24-31 °C. Relative humidity averaged 38% with a mean humidity of 23% to 53% across dates. The coldest two USDS chambers, L11 and H2, averaged 26 °C and lacked bait stations, while the warmest two USDS chambers averaged 28 °C and were either toxic (L7) or non-toxic (L10) sites. As a group, north-facing USDS (L11, H3, and H17) reported a similar average air temperature and relative humidity compared to south-facing USDS (L7, L10, H2).

Discussion

The double-reservoir sheet design resulted in higher rates of bait uptake by adult mosquitoes than all previous ATSB-USDS designs combined. The 20% mean bait-positive rate in CDC traps, for example, was far above the maximum bait-positive rates previously recorded for CDC traps (e.g., see Annual Report 2020). Moreover, double digit bait-positive rates were found throughout station deployment and across the USDS landscape, whereas previous bait-positives were found only on select dates and in select USDS locations. Net sweep samples provided further evidence the adult mosquitoes readily visited and fed on sugar bait. Bait-positive rates were regularly above 50% and fully-fed specimens represented about half of all bait-positives in both toxic and non-toxic treatments sampled by net sweep.

The bait-saturated sheet was likely key to enhanced bait ingestion by mosquitoes, as it was designed to be easily accessible with plenty of pre- and post-meal resting sites across a relatively large surface area. Weekly replacement of bait-saturated sheets was essential since many sheets dried, despite reservoir recharge, and debris accumulated, especially after wind events and landscaper activity. ATSB placement farther down into each USDS, where bait feeding sheets may be less exposed to surface conditions, may be warranted whenever possible in future trials. The finding of bait-positive mosquitoes the week after bait sheets were removed and reservoirs closed could have been a result of mosquitoes feeding off bait residues within USDS. Laboratory experiments (e.g., Figure 2) demonstrated adult mosquitoes can feed off solid bait residues, especially soft, higher moisture residues, and such residues were common from drips on the outside of bait reservoirs and on chamber wall surfaces. This type of residual effect could extend the duration of adult control and/or expand the surface area of bait contact beyond the station proper and would need further study to assess its relevance.

Downsides of the double-reservoir design were that it required rebar support, entry inside USDS chambers for processing, a relatively large volume of bait per chamber, and weekly recharges with sheet replacements. A single reservoir sheet design that would be easier to support and maintain inside USDS and yet provide mosquito feeding opportunities comparable to the double reservoir model is being tested currently in the laboratory. Pending laboratory findings, the single-reservoir model may replace the double-reservoir model in the upcoming USDS trial in autumn.

The physical separation of the fermented attractant and sugar bait could have enhanced the attraction and/or stimulation of stations for improved feeding outcomes. Preliminary laboratory choice assays suggest bait without fermentation is preferred over a bait-fermentation mixture; however, a smaller version of the field setup, with separate bait and fermentation containers, has not been fully investigated. A comparison of these bait-fermentation treatments – i.e., separate, mixed, or bait alone – is ongoing to better grasp possible role (s) of the fermented attractant in overall station efficacy. Direct field comparisons might also be warranted and the autumn USDS experiment may present an opportunity to deploy different bait-fermentation strategies concurrently at separate HOA locations.

Sweep net collections were primarily instituted to monitor bait feeding rates of adults, supplementing feeding rate data generated from CDC-UV traps. It was possible resting adults targeted by sweep nets in the early afternoon and late morning may be different individuals from those lured to CDC-UV traps in the evening and early morning, especially when a bait station may satisfy sugar demands and cause intoxicating effects. Therefore, as many mosquitoes as practical were captured and many USDS, especially those with higher mosquito counts, were swept for longer periods of time using more back-and-forth transects than USDS with lower mosquito activity. Duration of sampling will be standardized to 30 seconds (or 1 minute) in future sampling to more accurately compare mosquito abundance among USDS sites.

The impact of bait stations on mosquito abundance was unclear. On one hand, the main priorities of the spring study were not control-based – i.e., ATSB design and USDS sampling were focused on optimal bait feeding rates and monitoring methods – and therefore the experimental design itself may have limited the efficacy of baits. The highest adult counts were

found in toxic-station assigned USDS before bait deployment and no clear change was apparent during or after placement of stations. Past USDS studies indicated toxic stations were linked to slight increases in mosquito abundance and mosquitoes were assumed to be attracted to stations without feeding sufficiently upon them to cause widespread mortality. On the other hand, bait-feeding appeared prolific in toxic USDS and significant mortality should be expected. A decline in mosquito abundance was evident over time in toxic USDS; however, the importance of bait stations relative to other factors (e.g., weather) was questionable. Seasonal fluctuations, especially temperature shifts (Annual Report 2022), can significantly be associated with mosquito production in USDS and could explain why mosquito abundance sharply increased in the middle of bait station deployment and followed the same trend in both toxic and non-toxic treatments.

The upcoming USDS study in autumn of 2023 will seek to use and build upon the ATSB design and USDS sampling methods of the spring study, but also design the experiment to maximize potential mosquito control efficacy of bait stations in a particular USDS area.

Studies that combine ATSB with other control agents in an integrated mosquito management scenario continue to be a future target of research efforts in USDS. Adulticidal baits in ATSB or alternative delivery methods such as sprays would be applied to one USDS treatment area compared to a second USDS treatment area with both an adulticide and a larvicide of slow-release granules of the insect growth regulator pyriproxyfen or equivalent.

Semiannual Research Progress Report #3 for CVMVCD grant:

Determining fire ant bait specificity to extend fire ant control by conserving non-target ants.

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June 30, 2023

Summary of Activity January 2022 through June 2023.

The goal of the proposed 2022-23 research is to extend red imported fire ant (RIFA) control by conserving non-target ants. Maintaining populations of non-RIFA ants should provide biotic resistance to RIFA reinfestation in areas cleared of fire ants. Specific aims are to determine which fire ant baits are not foraged upon by non-RIFA ant species found in the Coachella Valley.

Year 1: Identify fire ant baits that are not accepted, or foraged, by non-RIFA ants in FL in anticipation they will be indicators of bait specificity applicable to ants in the Coachella Valley.

Methods. Bait acceptance tests were conducted with laboratory colonies of bicolor trailing ants, *Monomorium floricola*, and field colonies of pyramid ants, *Dorymyrmex bureni*; big-headed ants, *Pheidole megacephala*; harvester ants, *Pogonomyrmex badius*; and rover ants *Brachymyrmex sp.* Each species was tested for bait acceptance among eight, commercial fire ant baits containing various active ingredients (Table 1).

Table 1. Commercial fire ant baits used in non-target ant bait acceptance tests in Florida.

Bait	% Active Ingredient	Manufacturer
Advion	0.045 % indoxacarb	Syngenta
Siesta	0.063% metaflumizone	BASF
Clinch	0.011% abamectin	Syngenta
Antixx	0.015% spinosad	Neudorff
Amdro Pro	0.73% hydramethylnon	BASF
Esteem	0.5% pyriproxyfen	Valent
Extinguish Pro	0.5% (S)-methoprene	Zoecon
Extinguish Plus	0.0365% hydramethylnon, 0.250% (S)-methoprene	Wellmark

For the first replicate of the laboratory bait acceptance conducted on *M. floricola*, colony fragments (≥ 2000 workers + a small amount of brood) from 1 lab colony, were separated into shoebox-sized trays, starved for 48 hr and then given access to 0.5 g (~1 tsp) of one of each of the 8 baits. Number of ants at bait were counted every 10 minutes up to 60 minutes. For reps 2

and 3, tests were conducted in full-size trays, thus allowing greater spatial separation of the baits. In addition, sausage lures were placed adjacent to baits with low recruitment after 60 min and ants at sausage were counted after 10 minutes to demonstrate that the ants would forage to a readily accepted lure.

For the field bait acceptance tests with *Dorymyrmex bureni* (6 reps), *Pogonomyrmex badius* (3 reps) and *Pheidole megacephala* (3 reps). We located 3 colonies (reps) and placed 0.5 g (~ 1 tsp) of each bait in a circle about 3 ft apart and about 4.5 ft from the nest entrance. Each bait was placed in a large weigh boat with 1 side cut off to facilitate ant access to baits and counting ants (Fig. 1). The number of ants on a bait were counted every 10 minutes for up to 60 minutes. Sausage lures were placed at baits with low recruitment after 60 minutes and the number of ants at a sausage was counted at 10 minutes.



Fig. 1 Field bait acceptance test. Pink flag marks a *P. megacephala* nest entrance encircled by bait in weigh boats.

Potential non-target ants to be tested in Coachella Valley that were collected in Palm Desert Greens and the Eldorado wash area were identified as *Dorymyrmex bicolor*, *Pogonomyrmex californicus* spp. group, *Brachymyrmex patagonicus*, and *Pheidole* spp.

Results. Most of the baits were accepted by the ants tested in Florida. However, the Siesta and the Extinguish Pro baits had very low counts of *P. megacephala* which suggests they should be tested further on non-target ants found in the Coachella Valley. Laboratory and field tests (3 reps total) with *Brachymyrmex* sp. had extremely low counts for all baits, but test colony fragments were very small and may had limited foraging.

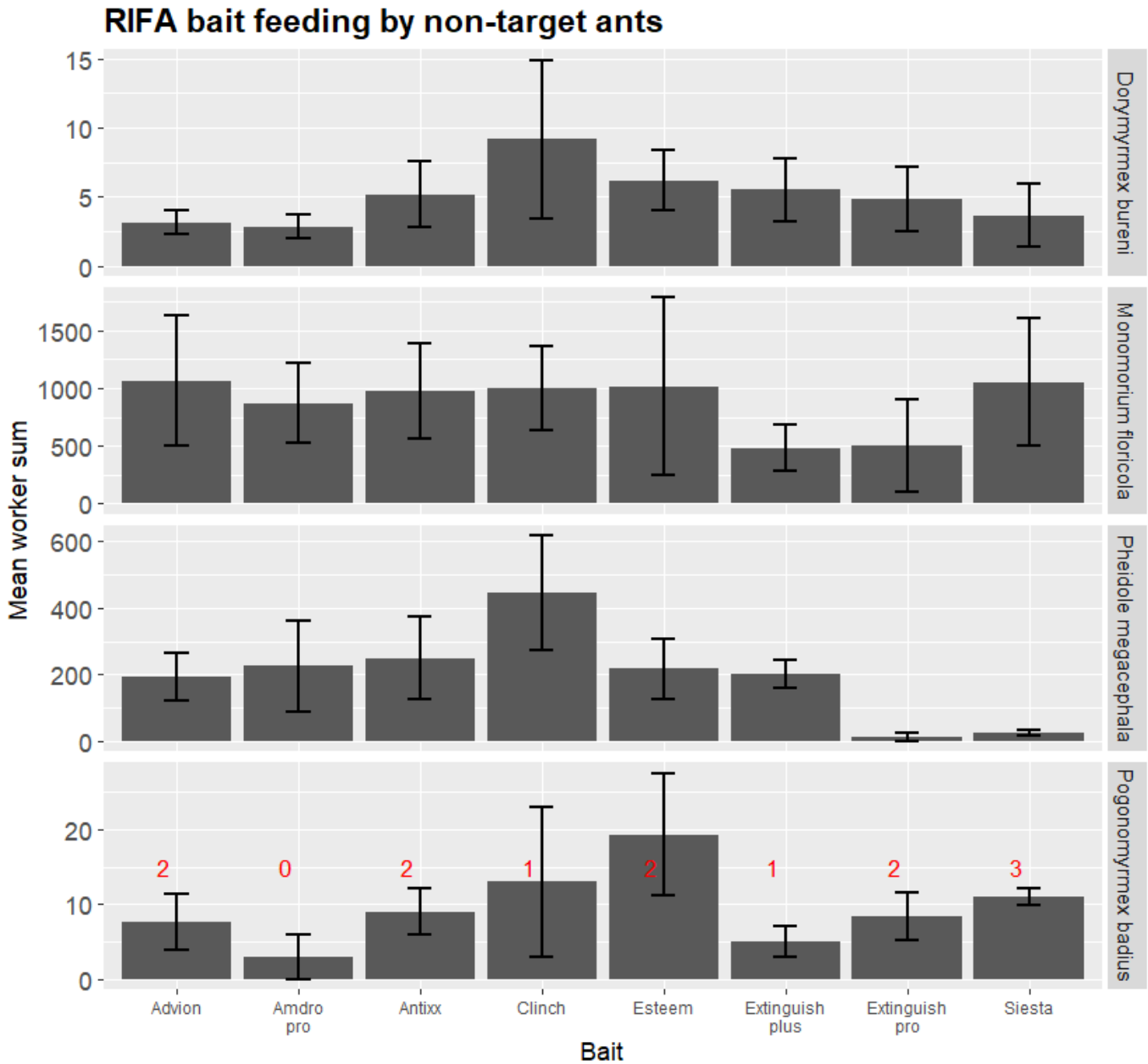


Fig. 2. Total sum of workers feeding on baits by species. Workers were counted every 10 minutes for 1 hour. Numbers in red for *Pogonomyrmex badius* indicate the number of reps (out of 3) where all the bait was consumed. Error bars are +/- 1 SEM. Data represents means across 3 reps, except *Dorymyrmex bureni* for which 6 reps were completed.

Year 2: Identify fire ant baits that are not accepted by non-RIFA ants in the Coachella Valley.

Methods. Bait acceptance tests were conducted in the field in Indio (CVMVCD headquarter grounds), Palm Desert (Palm Desert Greens Country Club golf course), and La Quinta (La Quinta Medical Center) on June 5-8, 2023. Nest entrances of field colonies of California harvester ants, *Pogonomyrmex californicus*; big-headed ants, *Pheidole crassicornis* group; a honeypot ant, *Myrmecocystus* sp.; and two pyramid ants, that key to *Dorymyrmex bicolor* but were designated as either “large” or “small” in size and they had different bait preferences. Each species was tested for bait acceptance among five, commercial fire ant baits containing various active ingredients (Table 2). The tested baits were selected based on bait acceptance tests conducted on ants in Florida and baits used by the District.

Table 2. Commercial fire ant baits used in non-target ant bait acceptance tests conducted in the the Coachella Valley, California.

Bait	% Active Ingredient	Manufacturer
Advion*	0.045 % indoxacarb	Syngenta
Siesta*	0.063% metaflumizone	BASF
Esteem	0.5% pyriproxyfen	Valent
Extinguish Pro	0.5% (S)-methoprene	Zoecon
Extinguish Plus*	0.0365% hydramethylnon, 0.250% (S)-methoprene	Wellmark

*bait used by the CVMVCD

The bait acceptance was determined by placing ¼ teaspoon of each bait on filter paper (4.25 cm dia., Whatman #1) that was positioned generally in a semi-circle around a nest entrance with adjustments to allow access relative to ground features (e.g., tree roots). Depending on species, baits were placed equidistant from the nest entrance (7 – 43 cm) and baits were 5 – 14 cm apart. Tests were conducted when ants were active in mornings and very late afternoon, generally when temperatures were between 80 – 95 °F. The total number of ants that removed bait particles from the filter paper were counted for 30 minutes for each bait. Tests were replicated at separate nest entrances and the ant totals were averaged among the baits and species to quantify bait acceptance. There were 2 – 3 replicates per species except for *Myrmecocystus* sp. which had only 1 replicate. Because we observed ants exploring bait particles during all tests, it was not necessary to confirm foraging activity with sausage lures.

Results. Two non-target ants readily accepted all 5 fire ant baits presented (Fig. 3). The California harvester ant even removed all of the bait granules at least once for each bait product. The large bicolor pyramid ant also consistently removed bait granules across all products with the Siesta bait being completely depleted in one replicate. While the small and large bicolor pyramid ants, keys to the same species, *Dorymyrmex bicolor*, only 0 – 7 small *D. bicolor* removed bait particles, while some antennated the bait then cleaned their antennae. The consistently different bait acceptance behavior, plus the large and small forms were each found in separate sites (La Quinta Medical and CVMVCD, respectively) suggests a *Dorymyrmex*

taxonomist may need to be consulted and/or more replicates conducted.

Bait removal by *Forelius pruinosus* was limited to 0 – 10 ants with inconsistent acceptance among the baits. There were several observations of this species feeding in place on the Advion and Siesta baits (15 and 25, respectively). In addition, *F. pruinosus* was seen carrying away bait if it was placed on their trail (Extinguish Plus and Extinguish Pro), and they fed in place and removed bait across all products in replicates 2 and 3 of the California harvester ant tests.

The big-headed ant, *Pheidole crassicornis* group, had 0 – 16 ants removing bait granules among all products. In addition, 0 to at least 8 ants were feeding in place on all the baits. The honeypot ant species explored all baits but did not remove any bait nor were any of the ants feeding in place on the baits.

In summary, preliminary analysis of fire ant bait acceptance by ants in the Coachella Valley, suggested that non-target ant species tested either readily accepted all bait products (California harvester ants, large bicolor pyramid ants), did not accept any baits (honeypot ant), or had limited bait acceptance among all baits (small *D. bicolor*, *F. pruinosus*, *P. crassicornis*). Thus, none of the fire ant bait products tested seemed to exhibit obvious distinguishable non-acceptance by non-target ant species.

RIFA bait feeding by non-target ants

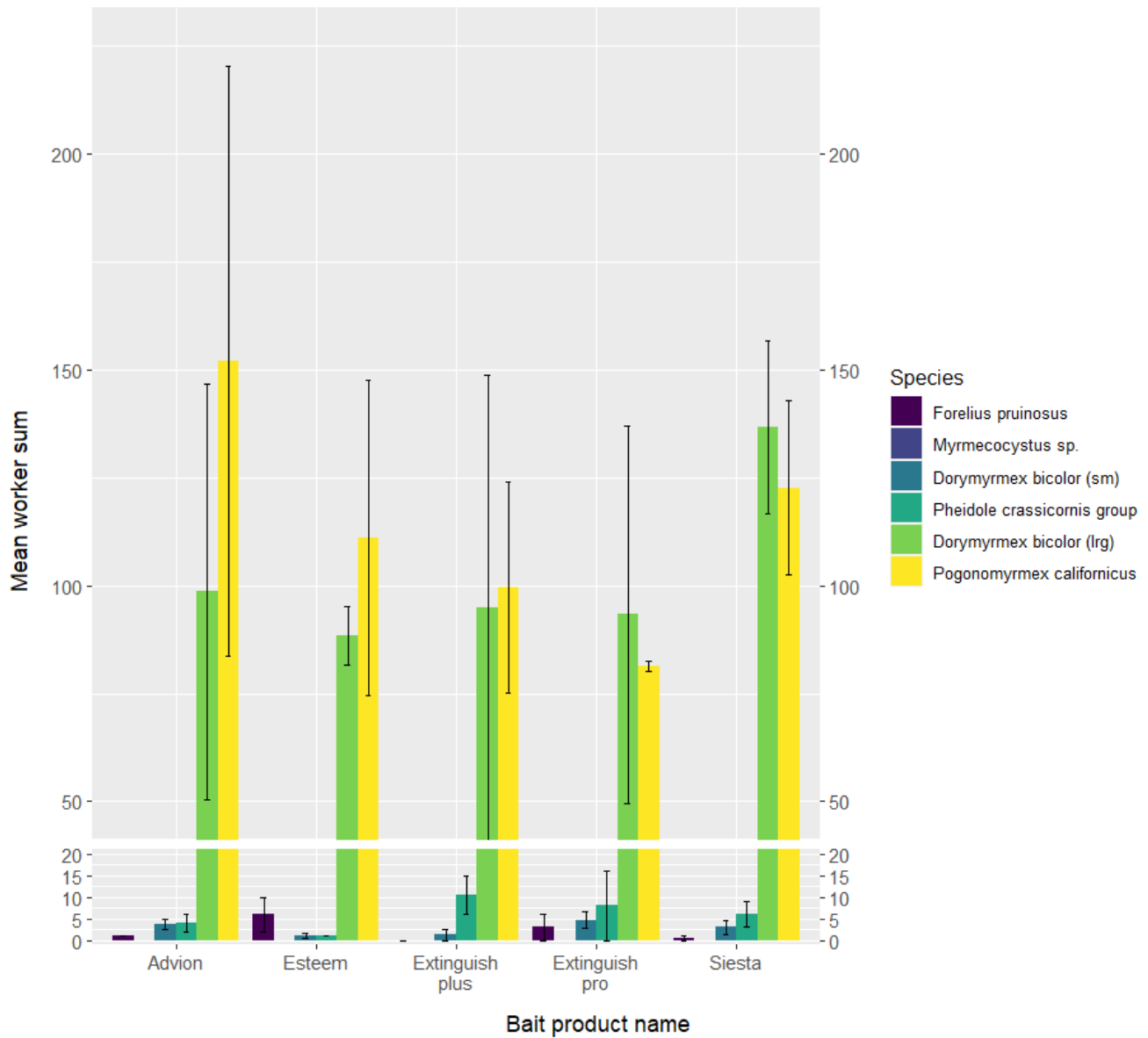


Fig. 3 Average (\pm SEM) total count of ants by species that removed each bait over the course of 30 minutes. N=3 for all species except: *F. pruinusus* (N=2), *P. crassicornis* group (N=2), *Myrmecocystus* sp. (N=1). Note that some species did not remove many bait particles but were feeding in place on baits (see text).

Due to COVID-19 restrictions at USDA-ARS labs were in place through March 2022. First quarter objectives were rescheduled to the third and fourth quarters.

Revised milestones for fire ant bait acceptance studies on non-target ants.

Year / Quarter	FL bait acceptance tests	CA bait acceptance tests
2022 Jan-Mar	Lab acceptance tests	
2022 Apr-Jun	Field surveys & lab acceptance tests	
2022 Jul-Sep	Field surveys & lab acceptance tests	
2022 Oct-Dec	Field surveys & tests: in progress	
2023 Jan-Mar	Field surveys & tests: completed	Field surveys & tests: field survey initiated
2023 Apr*-Jun		Field surveys & tests: completed
2023 Jul-Sep		
2023 Oct-Dec		

*avoid Coachella and Stagecoach Festivals in April

Semiannual Research Progress Report #7 for CVMVCD grant:

Improving fire ant IPM in the Coachella Valley: Effects of irrigation on bait efficacy, mating flight phenology, and the status of biocontrol agents.

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June 30, 2023

Summary of Activity January 2020 through June 2023.

The objective of the proposed research for 2020-2021 is to improve the integrated pest management (IPM) of fire ants in the Coachella Valley by: 1) Evaluating the effect of irrigation on bait efficacy to determine the need to withhold irrigation after bait application; 2) Identifying periods of peak mating flight activity to improve timing of bait applications; and 3) Determining the spread of fire ant biocontrol agents released in the Coachella Valley to assess their further utilization for fire ant IPM. Due to COVID-19 restrictions, a 1-year no-cost extension (ending March 31, 2023) was granted to provide more time to complete the objectives. USDA-ARS travel restrictions for COVID-19 were eased in the spring of 2022 which allowed Rachel Atchison (Biological Science Technician) and David Oi to make three trips to the District which resulted in significant progress on the proposed research.

- 1) To evaluate the effect of irrigation on fire ant bait efficacy in the field, two field sites, located at Lake Cahuilla Veterans Regional Park and Lake La Quinta Recreation Area, were surveyed for red imported fire ants on Feb. 25-26, 2020, and were determined to be suitable for the study. However, because the study was suspended for over 2 years due to COVID, a new study site was located by the CVMVCD (District) staff. With significant support from the District, the field study to evaluate effect of irrigation on fire ant bait efficacy was conducted in May and June 2022 at the Palm Desert Greens Country Club. Initial data analysis indicated that reductions in fire ant activity was not significantly different when bait was applied regardless of whether irrigation was withheld or not withheld (i.e., normal irrigation schedule was maintained). Fire ant activity after bait applications under both irrigation regimes was significantly lower than the untreated controls.
- 2) Research on monitoring fire ant mating flight activity resumed in May 2022. The prototype fire ant alate traps that successfully caught alates in Gainesville, Florida and in Palm Desert, CA in 2021 was partially redesigned to simplify transport and assembly. Eight traps were installed with District assistance in May 2022 at two sites (4 traps each at the Eldorado wash and at Arnold Palmer Restaurant). Alates were trapped at both of these irrigated sites in May through October, but none in November and December. In addition, temperature and humidity sensors were installed at both trap sites to correlate weather conditions to mating flights.
- 3) Surveys for the spread of fire ant biocontrol agents released and established in Palm Desert and La Quinta in 2014/2015 were conducted in May and June 2002. Fire ant decapitating

phorid flies were collected on sticky traps at the Monterey Country Club release site as well as 748.95 meters (ca. 0.46 miles) west and 650.14 meters (0.4 miles) east of the release site. A total of 41 flies were collected within the wash area. Both released species, *Pseudacteon curvatus* and *P. obtusus* were found.

The fire ant virus, *Solenopsis invicta* virus 3 (SINV-3) was detected in the Eldorado wash area where it was introduced into fire ant nests in 2014. Of the 19 nests sampled, five (26%) were infected with the farthest detection about 0.26 miles east of the release site. SINV-3 was not detected (n=7) at the successful, 2015 inoculation at the La Quinta Medical Center.

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Due to the COVID-19 pandemic, USDA-ARS labs were closed on March 19, 2020 and all personnel were placed in mandatory telework status. In July 2020, the CVMVCD project was approved for limited research activity to allow progress toward meeting objectives of extramural agreements. However, the pace of research was slow as the USDA labs were only permitted 25% occupancy (1 person per lab) and air travel was prohibited. In late March 2022 USDA labs began to transition to full occupancy and domestic air travel was allowed in mid-April 2022.

1) Irrigation effects on bait efficacy.

We proposed to compare the efficacy of standard fire ant bait on fire ant populations in field sites where irrigation is withheld after baiting and in sites that follow a normal, daily irrigation schedule. We hypothesized that fire ant bait efficacy will be similar at the irrigated and non-irrigated sites, based on the results of the 2019 Coachella Valley field study and observations of fire ants foraging on wet bait (Oi et al. 2022).

Site selection and preliminary fire ant sampling was completed on February 25-26, 2020. Two field sites, located at Lake Cahuilla Veterans Regional Park and Lake La Quinta Recreation Area, were determined to be suitable for the study. Because the study was suspended for over 2 years due to COVID restrictions, a new site was located by the CVMVCD (District) staff. With significant support from the District, the field study was conducted in May and June 2022 at Palm Desert Greens Country Club. The course was previously treated with Extinguish Plus fire ant bait about a year ago and standard fire ant surveillance by the district indicated 61% of the hotdog lures had fire ants on May 20, 2022.

Eight golf course holes and an alcove off the #4 hole fairway, which was used as a practice chipping area and dog park, were used in the study. Hole #1, #2, #4, #6, and the alcove received the standard withholding of irrigation the night before the day of fire ant bait application, and the resumption of irrigation in the evening of the day, bait was applied. Hole #10, #12, #14, and #16 received bait application the morning after evening irrigation was resumed. Overnight/early morning irrigation was measured with rain gauges at 7 holes and averaged 1.1 cm (range, 0.9 – 1.4). All holes received the label rate of Avion[®] Fire Ant Bait (0.045% indoxacarb), except holes #1, #16, and the alcove, which were untreated controls. Bait was applied in the mornings of May 24 and 25, 2022 by the District Operations personnel using a herd seeder (Fig. 1.). Hence, treatment applications reflected District bait application methods.



Fig. 1. CVMVCD fire ant bait application equipment and operator.

The study utilized a completely randomized design with each course hole serving as a replicate. Thus, there were three treatments (a) bait-with irrigation, (b) bait with irrigation withheld, and (c) a control without bait [1 hole each with and withheld irrigation, plus the alcove where irrigation was withheld]. Assessment of fire ant activity was determined by counting the number of fire ants on nickel diameter-sized dollops of peanut butter lures (21 mm, $\approx 1 - 1.5$ ml) placed on three transects per hole that were located along the edge of tee boxes, along one side of a fairway rough, and along the edge around a putting green. For the alcove, three transects were set about 50 ft apart. Ten lures per transect were placed at ≈ 15 ft intervals and examined for ants 45 – 60 minutes after lures were applied. Peanut butter was dispensed directly onto the turf using syringes (60, 100 ml). Sun exposed lures were shaded with a wooden placard ($\approx 3 \times 4$ in.) supported by a landscape staple. Sampling was conducted at 0 (pretreatment), 2, and 4 weeks after bait application. For each sampling date, the number of fire ants per lure was averaged across each tee, fairway, and green transect per hole ($n=90$ lures) then compared among treatments by analysis of variance and Tukey’s HSD test

Results. Initial data analysis indicated that the reduction in fire ant activity was not significantly different when bait was applied with irrigation (i.e., normal irrigation schedule was maintained) or without irrigation. Fire ant activity after bait applications under both irrigation regimes was significantly lower than the untreated controls (Table 1). These results are consistent with reports of fire ant bait efficacy not being negatively affected when applied in the presence heavy dew that dries during the day (Collins et al. 1993), and baits wetted after application in field plots in the Coachella Valley (Oi et al. 2022). Fire ants will feed on wet bait and water-soaked baits that have dried (Oi et al. 2022). It is likely that fire ant baits applied before or after irrigation in the arid climate of the Coachella Valley will not be compromised and will be foraged by fire ants if the baits are accessible (i.e., not washed away or submerged in standing water).

Table 1. Average number of fire ants per peanut butter lure (n=90 lures per hole) from golf course holes (n=3 per treatment) at specified weeks after application of Advion Fire Ant Bait (0.045% indoxacarb) with or without irrigation.

Treatment	Average (\pm SEM, n=3) number of fire ants		
	Week 0 (pretrt.)	Week 2	Week 4
Irrigation & bait	44.4 (\pm 9.6) a	21.1 (\pm 7.6) a	41.8 (\pm 9.8) a
Irrigation withheld & bait	32.5 (\pm 3.0) a	21.0 (\pm 5.6) a	35.5 (\pm 8.3) a
Control (no bait) ^a	32.6 (\pm 8.4) ^b a	50.8 (\pm 7.2) b	81.3 (\pm 5.1) b

Averages followed by the same letter within a column are not significantly different ($P > 0.05$) by analysis of variance and Tukey's HSD test.

^a Control had 1 hole each with or withheld irrigation plus the alcove with irrigation.

^b n=2 holes.

2) Peak mating flight activity.

With the resumption of limited research activity in July 2020 at CMAVE, we focused on the development of equipment (traps/cameras) for fire ant alate flight monitoring. Wildlife cameras partially recorded alate flights but were difficult to deploy and did not provide consistent, useable surveillance footage. Thus, we redesigned alate traps used in the past (Morrill and Whitcomb 1972) to make them less cumbersome to transport and service. More recent trap modifications (J. Oliver TN State Univ.) utilized an inverted root ball basket with screening to collect alates in a covered bunt pan (Fig. 2). Utilizing the fire ant alate behavior of crawling up blades of grass or other elevated perches from a nest before taking flight, the trap was redesigned with the following modifications (Fig. 3):

- 1) Dowel rods are used to guide alates into the covered collecting pan. Alates will crawl to the top of the rods and then take flight. The cover confines the alates which drop into the collecting pan filled with liquid preservative (propylene glycol solution).
- 2) Screening is not used since the dowel rod technique collects enough alates.
- 3) Root ball baskets were replaced with legs that can be disassembled from the collecting pan which allows for easier transport.



Fig. 2. Previous fire ant alate trap with inverted wire basket and screening that funnels alates initiating flights into a pan filled with collecting fluid.



Fig. 3. Redesigned fire ant alate trap with dowel rods that guide alates into a collecting pan. Alates typically crawl to a high perch when they initiate mating flights.

Traps were sent in March 2021 to the District for field testing under Coachella Valley conditions. Alates were caught in traps set in Gainesville, FL and Palm Desert, CA (Table 2.) Below is a link for a video of fire ant alates being trapped in Gainesville:

<https://drive.google.com/file/d/1KQGp2oP86L-PP6gpfcQFQShrdqDBjfr0/view?usp=sharing>

Table 2. Number and month fire ant alates caught in traps set in Gainesville, FL and Palm Desert, CA 2021.

Location	Trap 1	Trap 2	Trap 3	Trap 4	Trap 5
Gainesville, FL	57, April	35, May	37, May	49, June	548, June
Palm Desert, CA	87, June	–	–	–	–



Fig. 4. Dec.2021 trap design with a plywood base that provided more secure attachment points for the legs.

The trap design was later modified in Dec.2021 with a plywood base that simplified assembly and made the traps easier to ship (Fig. 4).

To correlate temperature and humidity with the occurrence of alate flights, radiation shields were constructed to protect temperature and humidity recorders (iButtons) that were installed near alate traps (Fig. 5.).

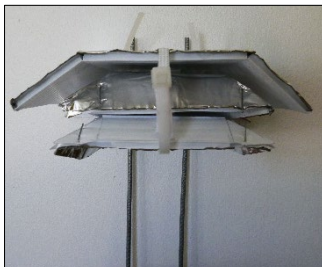


Fig. 5. Interior view of a radiation shield that houses temperature and humidity recorders.

Eight traps (Dec. 21 design) were installed with District assistance on May 26, 2022. Individual traps were installed over four nests in the irrigated, stormwater wash of the Whitewater River located near El Dorado Drive and Fred Waring Drive (Eldorado wash) in Indian Wells, CA. Most of the traps were placed over large nests adjacent to the concrete bases of irrigation gun sprinklers. The other four traps were placed over nests located on the grounds of Arnold Palmer Restaurant in La Quinta. In addition, temperature and humidity sensors were installed at both trap sites to correlate weather conditions to mating flights. All the colonies with traps were the polygyne social form as determined by Gp-9 genotyping (Valles and Porter 2003). The District is graciously servicing the alate traps and downloading the weather data.

Results. Table 3 shows the number of alates captured through May 24, 2023. Alates were caught among all traps at both irrigated sites from May – October, 2022 and Feb. – May, 2023. Flight activity, indicated by the frequency of at least one alate caught per trap, was more prevalent from March through September with 10 – 23 flights occurring from May 27, 2022 to May 31, 2023 (Table 4). If 10 trapped alates is an indication of an intensive flight (Morrill 1974), six nests (A, B, C, E, G, H) had more than one intensive flight over the 1-year period (Table 5). Average (\pm SD) minimum and maximum daily temperatures and relative humidities for the weeks when 10 or more alates were trapped suggest that intensive flight activity occurs mainly during hot summer conditions in May through September. Daily average minimum and maximum temperatures and relative humidities for the weeks when alates were not caught indicated flights are virtually non-existent during cool, winter weather (Tables 5 and 6). When alates were trapped during low catch (<10 alates) months, average, daily maximum temperatures were very warm (27.3 – 30.9 °C, [81 – 88 °F]), but not as hot as summer temperatures (Tables 6 and 7). Relative humidities did not seem to be associated with flights and may have reflected the occurrence of irrigation. Further data collection is scheduled through the summer of 2023. Thus far, seasonal flight activity described in this study are similar to fire ant alate flight activity reported by Morrill (1974) in studies conducted in unirrigated, northern Florida sites.

Table 3. The number and gender of red imported fire ant alates caught in traps placed over eight nests at sites in the El Dorado wash (traps A – D) and Arnold Palmer Restaurant (traps E – H) in the Coachella Valley, CA. Traps were examined weekly 31 May 2022 – 24 May 2023*.

Trap	May '22		Jun		Jul		Aug		Sep		Oct		Nov		Dec		Jan		Feb		Mar		Apr		May '23		Sum by trap		
	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀+
A	0	0	30	4	36	16	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3	3	14	8	85	33	118
B	25	6	32	56	87	114	17	9	83	51	0	0	0	0	0	0	0	0	0	1	2	1	1	3	7	4	254	245	499
C	8	0	0	0	0	0	1	0	38	7	0	2	0	0	0	0	0	0	1	0	2	1	4	0	13	4	67	14	81
D	1	0	0	0	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	16	12	19	31
E	0	0	41	5	45	0	0	0	3	0	0	0	0	0	0	0	0	0	3	2	5	8	3	1	3	6	103	22	125
F	0	0	3	0	0	2	1	1	8	5	0	0	0	0	0	0	0	0	4	1	2	0	1	1	7	3	26	13	39
G	0	0	125	8	18	4	4	0	2	2	2	2	0	0	0	0	0	0	1	0	0	6	2	1	41	29	195	52	247
H	0	0	117	25	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	8	11	132	39	171
SUM	34	6	348	98	194	139	24	11	134	65	2	4	0	0	0	0	0	0	11	4	11	19	16	10	100	81	874	437	1311

*Traps were not examined the week of Oct. 24, 2022, and Jan. 25 and Mar. 22, 2023.

Table 4. Potential mating flight activity as indicated by the frequency of ≥ 1 red imported fire ant alate (female or male) caught in traps placed over eight nests at sites in the El Dorado wash (traps A – D) and Arnold Palmer Restaurant (traps E – H) in the Coachella Valley, CA. Traps were examined weekly from 31 May 2022 – 24 May 2023*.

Trap	May '22		June		July		Aug		Sep		Oct		Nov		Dec		Jan		Feb		Mar		Apr		May '23		Sum by trap	
	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂
A	--	--	2	--	4	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	1	--	3	--	3	--	14	
B	1	--	4	--	3	--	3	--	2	--	--	--	--	--	--	--	--	--	1	--	1	--	2	--	2	--	19	
C	1	--	--	--	--	--	1	--	2	--	2	--	--	--	--	--	--	--	1	--	2	--	3	--	3	--	15	
D	1	--	--	--	2	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	--	7	
E	--	--	1	--	2	--	--	--	1	--	--	--	--	--	--	--	--	--	1	--	3	--	2	--	4	--	14	
F	--	--	1	--	2	--	2	--	3	--	--	--	--	--	--	--	--	--	1	--	1	--	2	--	4	--	16	
G	--	--	2	--	2	--	2	--	2	--	2	--	--	--	--	--	--	--	1	--	3	--	2	--	2	--	18	
H	--	--	4	--	2	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	2	--	2	--	12	
SUM	3	14	17	10	10	10	4	0	0	0	0	0	6	12	16	23	115											

*Traps were not examined the week of Oct. 24, 2022, and Jan. 25 and Mar. 22, 2023.

Table 5. Number of potential mating flights where ≥ 10 red imported fire ant alates (female or male combined) caught in traps placed over eight nests at sites in the Eldorado wash (traps A – D) and Arnold Palmer Restaurant (traps E – H) in the Coachella Valley, CA. Traps were examined weekly from 31 May 2022– 24 May 2023*.

	May '23	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Febr	Mar	Apr	May '23	Sum by trap
Trap	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂	♀ ♂
A	--	1	2	--	--	--	--	--	--	--	--	--	1	4
B	1	2	3	1	1	--	--	--	--	--	--	--	1	9
C	--	--	--	--	1	--	--	--	--	--	--	--	1	2
D	--	--	--	--	--	--	--	--	--	--	--	--	1	1
E	--	1	1	--	--	--	--	--	--	--	1	--	--	3
F	--	--	--	--	1	--	--	--	--	--	--	--	--	1
G	--	2	1	--	--	--	--	--	--	--	--	--	2	5
H	--	2	--	--	--	--	--	--	--	--	--	--	1	3
SUM	1	8	7	1	3	0	0	0	0	0	1	0	7	28

*Traps were not examined the week of Oct. 24, 2022, and Jan. 25 and Mar. 22, 2023.

Table 6. Mean (\pm SD) daily minimum and maximum temperatures and relative humidities per week that ≥ 10 red imported fire ant alates (female or male combined) were trapped by at least 1 trap at each of the Eldorado wash and Arnold Palmer Restaurant sites (May 26, 2022 - May 24, 2023).

	≥ 10 red imported fire ant alates caught ^a				No alates caught ^b			
	Temp. °C ($\bar{x} \pm$ SD)		RH % ($\bar{x} \pm$ SD)		Temp. °C ($\bar{x} \pm$ SD)		RH % ($\bar{x} \pm$ SD)	
Site (traps)	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Eldorado wash (A–D)	21.3 (2.5)	40.6 (3.2)	24.3 (9.7)	82.6 (5.1)	8.7 (7.9)	25.8 (8.9)	28.2 (8.0)	85.9 (7.1)
Arnold Palmer (E–H)	20.8 (4.5)	37.8 (6.4)	19.1 (10.0)	69.5 (9.4)	8.4 (6.5)	24.6 (6.2)	25.1 (8.8)	77.5 (10.6)

^aN= 9 weeks for both sites, with the following caveats: humidity data are missing for 2 weeks for the Eldorado wash site.

^bN=20 weeks for the Eldorado wash site and 19 weeks for the Arnold Palmer site, with the following caveats: seven weeks of humidity data are missing for the Eldorado wash site and four weeks of temperature and humidity data are missing for the Arnold Palmer site.

Table 7. Mean (\pm SD) daily minimum and maximum temperatures and relative humidities per week that ≥ 1 but < 10 red imported fire ant alates (female or male combined) were trapped by at least 1 trap at each of the Eldorado wash and Arnold Palmer Restaurant sites during the low catch months of October '22 and February-April '23.

Site (traps)	≥ 1 red imported fire ant alates < 10 caught ¹			
	Temp. °C		RH %	
	Min.	Max.	Min.	Max.
Eldorado wash (A–D)	11.1 (6.1)	30.9 (6.0)	29.7 (3.6)	91.0 (5.4)
Arnold Palmer (E–H)	10.7 (3.6)	27.4 (5.3)	18.0 (5.5)	71.8 (7.3)

¹N= 10 weeks for the Eldorado wash site and 9 weeks for the Arnold Palmer site, with the following caveats: one week of humidity data is missing for the Eldorado wash site and two weeks of temperature and humidity data, plus one additional week of humidity data are missing for the Arnold Palmer site.

3) Status of fire ant biocontrol agents.

Surveys were conducted in 2022 (May 23, 24, & 26; June 8, 22 & 23) and in 2023 (February 7–9; June 7 & 8) to determine the spread of fire ant biocontrol agents, released in 2014/2015. The 2022 surveys focused mainly on the irrigated wash areas that run East – West, while the surveys in 2023 targeted areas north and south of the wash.

Phorid flies. In 2022, two species of fire ant decapitating phorid flies, *Pseudacteon obtusus* and *Pseudacteon curvatus*. were collected on sticky traps at the Monterey Country Club release site as well as 749 meters (ca. 0.46 miles) west and 650 meters (0.4 miles) east of the release site (Figs. 6 & 7 N-S surveys). A total of 41 flies (30 female *P. curvatus*; 6 female *P. obtusus*; 5 unidentified - possibly males) were collected and all were trapped within the wash area. Out of a total of 62 traps that were set, flies were caught at 14 traps (23%)

In Feb. 2023, eight *P. obtusus* (7 females, 1 male) were collected as far as 420 meters (0.261 miles) north of the release site/wash and 457 meters (0.284 miles) south of the release site. In addition, 6 possibly male *P. obtusus* were trapped. In June 2023, one *P. curvatus* female was trapped 921 meters (0.572 miles) north of the release site. Winds were high in the June survey, thus trapping was limited to 17 traps.

Solenopsis invicta virus 3. The fire ant virus, *Solenopsis invicta virus 3* (SINV-3) was detected in the Eldorado wash area where it was introduced into fire ant nests in 2014. Of the 19 nests sampled, five (26%) were infected with the farthest detection about 417 m (0.26 miles) east of the release site. This was farther than the detection from the May 2017 survey where it was detected 103 m away. At the other successful, 2015 inoculation located at the La Quinta Medical Center, SINV-3 was not detected (n=7). Part of the La Quinta site is undergoing construction and an adjacent natural garden area is not being maintained. Thus, fire ant habitat was diminished which limited sampling.

Additional fire ant samples for SINV-3 were obtained at the phorid fly and fire ant alate traps at Palm Desert Greens (dog walk area off hole #4 fairway), Monterey and Rancho Las Palmas Country Clubs wash area, and Arnold Palmer Restaurant. SINV-3 was detected at Monterey (2/2), Las Palmas (1/4), and Arnold Palmer (3/4). SINV-3 was not detected at Palm Desert Greens (0/6). While SINV-3 has been reported from other locations in the Coachella Valley (Oi et al. 2019), we wanted to use the opportunity to obtain an indication of prevalence at other sites. For all samples collected in May and June 2022, SINV3 was found in 24% of the samples (11/45).

It may be of interest to the District that the first documentation of a fire ant virus eliminating fire ant colonies under field conditions was published in Valles et al. (2022). In this small field study conducted in Florida, field introductions of this virus into fire ant nests (n=12) resulted in significant reductions of 57% in the size of nests and in the number of nests (7-fold decrease compared to controls) after 77days. SINV-3 also persisted for over 20 months and spread to adjacent uninoculated colonies.



Fig. 6. Phorid fly and SIN3 sampling sites in the wash area near the 2014 phorid fly release site in the Monterey Country Club (just east of Monterey Ave.). Red squares are phorid trap and SIN3 locations sampled in May and June 2022. Additional SIN3 sampling sites are indicated by the red teardrops. Traps with phorid flies are indicated by red squares with a black “fly” shape, and SIN3 positive samples have the blue and white “virus” symbol. Figures are the irrigated wash area west (top) and east (bottom) of Monterey Ave.

Revised milestones for fire ant bait efficacy in irrigated landscapes, mating flight activity, and determining the spread of fire ant biocontrol agents in the Coachella Valley.

Year / Quarter	CA field efficacy test of irrigated bait	Mating flight activity:	Biocontrol spread
2022 Jan-Mar	Site re-selection; Treat & sample	Site selection; Install alate traps	Sample & map
2022 Apr-Jun*	Site re-selection; Treat & sample Completed	Alate traps installed; Trapping In Progress	Sample & map Completed for June
2022 Jul-Sep		Completed	
2022 Oct-Dec		Completed	Postponed (weather)
2023 Jan-Mar		In Progress	Schedule pending

*avoid Coachella Fest 2022 April 15-24; Stagecoach April 29-May 1.

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Serving Public Health Since 1928

NEW BUSINESS



Serving Public Health Since 1928

Coachella Valley Mosquito and Vector Control District

Staff Report

July 11, 2023

Agenda Item: New Business

Accept the resignation of Trustee Janell Percy — **Jeremy Wittie, M.S., CSDM, General Manager**

Background:

Trustee Percy resigned from her position on the CVMVCD Board of Trustees effective June 7, 2023. Trustee Percy will be relocating outside of the District Boundaries and will not long be qualified to serve on the Board.

The District will be contacting Riverside County to request the appointment of a replacement trustee to serve the remaining term of Trustee Percy's term (December 2024).

Staff Recommendation:

Staff recommends accepting the resignation of Trustee Percy and thank her for her service to the District.

Attachments:

Trustee Percy's Resignation Letter

Melissa Tallion

From: Janell Percy [REDACTED]
Sent: Wednesday, June 7, 2023 7:13 PM
To: Melissa Tallion
Cc: Jeremy Wittie
Subject: Re: June 13th--> [REDACTED] [REDACTED]

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Jeremy and Melissa,
I am sorry to announce that I will have to resign my position on the board. We are purchasing a home [REDACTED] and I will no longer be qualified to serve on the board. I will continue to work with Growing Coachella Valley for the time being, but will be overwhelmed with moving and getting ready to sell this house. This has been a wonderful experience and I do wish I could have been more involved from the beginning, but COVID sure did put a cramp on that. Please let the others on the board know that I enjoyed my time working with them and will always cherish the experience. Thank you and will keep in touch, Janell

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

location.

[REDACTED]

[REDACTED] -



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COMMITTEE AND TRUSTEE REPORTS

COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT

Finance Committee Meeting
DRAFT - Minutes

TIME 10:00 a.m. **DATE:** June 5, 2023

LOCATION: 43420 Trader Place Indio, CA 92201

COMMITTEE MEMBERS PRESENT:

Indian Wells Clive Weightman, Board Treasurer
Palm Desert Doug Walker, Trustee
County at Large Bito Larson, Trustee

COMMITTEE MEMBERS ABSENT:

None

OTHER TRUSTEES PRESENT:

None

STAFF PRESENT:

Jeremy Wittie, General Manager
David l'Anson, Administrative Finance Manager
Jennifer Henke, Laboratory Manager
Tammy Gordon, Public Information Manager
Melissa Tallion, Executive Assistant/Clerk of the Board

Other staff members joined the meeting as well

MEMBERS OF THE PUBLIC PRESENT:

Yes

Tasks and Ownership

Task	Owner(s)	Report Back (Finance Committee)
SIT progress update with Verily	Jennifer/Melissa	Report to full Board quarterly
Contact HARC, Inc. regarding the community survey	Tammy	TBD

1. Call to Order

Treasurer Weightman called the meeting to order at 10:02 a.m.

2. Roll Call

Roll Call indicated that all three (3) Committee members were present.

3. Confirmation of Agenda

Treasurer Weightman inquired if any agenda items needed to be shifted. Upon no objections from the Committee, the agenda was confirmed as presented.

4. Public Comments

Mr. Anderson commented on non-agenda items and submitted a written non-agenda comment that will be distributed to the Finance Committee. Mr. Anderson's comment is attached for the record.

5. Items of General Consent

- A. Approval of Minutes from March 14, 2023, April 11, 2023, and May 2, 2023, Finance Committee Meetings

On a motion from Walker seconded by Treasurer Weightman and passed by the following roll call votes, the Committee approved the minutes as presented. Note: Trustee Larson was absent and abstained from the approval of the March 14, 2023, minutes.

Ayes: Treasurer Weightman, Trustees Larson, and Walker

Noes: None

Abstained: Trustee Larson from March 14, 2023

Absent: None

6. Discussion, Review, and/or Update

- A. Review of Check Report from Abila MIP for the period of May 10, 2023, to May 31, 2023
The check report was reviewed by the Committee members and staff. The Committee did not have any questions.
- B. CalCard Charges (Abila report & Microix Workflow Report) – Statement dated May 24, 2023
The CalCard Charges were reviewed by the Committee members. Questions regarding specific charges were brought forward by the Committee. Staff provided more information regarding specific charges to satisfy the Committee.
- C. Review of May 2023 Financials and Treasurers Report.
The Committee and staff reviewed the Financials and Treasurers report. Overall, the District is showing a favorable variance.

7. Old Business

- A. 2023 Finance Committee Items
The staff report was reviewed, and staff will continue to update the Committee at each meeting.
- B. FY2023-24 Draft Budget
Jeremy Wittie, General Manager, led the discussion and began with the budget message. Tammy Gordon, Public Information Manager, and Jennifer Henke, Laboratory Manager led a discussion on Sterile Insect Technique (SIT) and the direction the District would like to go in. The third-party

vendor that the District had wanted to partner with is unable to supply mosquitoes and meet the District's timeline due to supply chain issues. This project is on hold until 2025. The \$600,000 for this project will be reallocated. Staff is proposing to put \$400,000 into Reserves for future potential SIT work and invest approximately \$200,000 for a public outreach project in the East Valley. Tammy Gordon would like to work with community partners to conduct a survey and academic research to ensure that the District is supporting the East Valley residents.

On a motion from Treasurer Weightman, seconded by Trustee Walker and passed by the following roll call votes, the Committee recommended to the Board of Trustees approval of the FY 2023-2024 Budget.

Ayes: Treasurer Weightman, Trustees Larson, and Walker

Noes: None

Abstained: None

Absent: None

8. New Business

A. Auditor Contract

David l'Anson, Administrative Finance Manager introduced this agenda item and provided an overview of the RFP that was issued.

On a motion from Treasurer Weightman, seconded by Trustee Larson and passed by the following roll call votes, the Committee recommended to the Board of Trustees approval to enter into an agreement with C.J. Brown & Company CPAs as the Auditor for the District.

Ayes: Treasurer Weightman, Trustees Larson, and Walker

Noes: None

Abstained: None

Absent: None

B. Review of finance-related items on the June Board agenda

The Committee reviewed the June Board agenda.

9. Schedule Next Meeting

The next Finance Committee meeting was scheduled for July 11, 2023, at 4:30 p.m.

10. Trustee and/or Staff Comments/Future Agenda Items

Jeremy Wittie thanked David, Jennifer, and Tammy for the great discussion and work during the budget process. Trustee Walker expressed his thanks to staff. Treasurer Weightman reminded the Committee that he and Trustee Walker will not be attending the June 13, 2023, Board meeting and asked that Trustee Larson deliver the Treasurer's report.

11. Adjournment

Treasurer Weightman adjourned the meeting at 11:10 a.m.

DRAFT

June 5, 2023

Coachella Valley Mosquito and Vector Control District (CVMVCD)

43420 Trader Pl.

Indio, California 92201

760.342.8287 (office)

Attn: Clerk of the Board

Re: Public Comment for the CVMVCD Appointed Finance Committee (Non-Agenda topics) meeting

Dear CVMVCD appointed members,

Please consider allowing citizens the opportunity to monitor and or participate with the CVMVCD organizations sub-committees. As this unique and unusual committee is very much aware of how It's meeting dates and times are manipulated to potentially limit Public participation and monitoring of its operations. Best practices would dictate that having set dates and times of recurring Public meetings would be an obvious requirement – please strive to restrict your ability to activity avoid allowing citizens the opportunity to monitor and or participate with your precived Public meetings.

The ever-changing wording (language) of CVMVCD administration documents (Meeting agendas) are outside common best practices protocols. It's clear that the CVMVCD administration have been actively attempting to destroy our community in regards to limiting public involvement (Free speech) at its organization venues. Such actions of reducing/denying the Public's ability to review all records and verbalized Statements prior to being required to comment on those subjects - while also placing time restrictions on verbal Public testimony and requiring written statements to be submitted prior to those meetings. Those dictatorial actions have destroys the CVMVCD image as a community asset and trusted organization.

This very small Three (3) person sub-committee shouldn't be assembled in the shadow of the Full number of appointees that make-up the CVMVCD Board of Trustees. And of course having long established appointees that refuse to vacate the CVMVCD organization have stagnated a precived open and fair discussion process in regards to potential Public Health threats and the well established status quo operations within the CVMVCD organization. Having witness the ongoing years of abusive misuse of CVMVCD administration officials authority against it's own workforce (employees) through pretext wrongful actions such as written reprimands and the purging of certain groups of people from continued CVMVCD employment have been shameful and potentially dangerous to our region.

Brad Anderson | Rancho Mirage, CA. | ba4612442@gmail.com

Coachella Valley Mosquito & Vector Control District

Public Comment / Request to Speak to the Board of Trustees

(Please Print)

Name: BRAD ALDERSON

Meeting Date: 6/5/2023

Address (Street Address Optional*):

City / State / Zip: Boulder Village

Phone: N/A

Email: N/A

Comment / Question:
Not a public comment

Please adhere to the following rules:

- State your name and city in which you reside
- Address your comments to the Board of Trustees as a whole
- Limit your comment to no more than three (3) minutes

This form is not mandatory but please note that priority will be given to those speakers that have filled out the form and turned it into the Clerk of the Board.

This form is subject to public disclosure.

*The Coachella Valley Mosquito and Vector Control District
welcomes your comments!*

